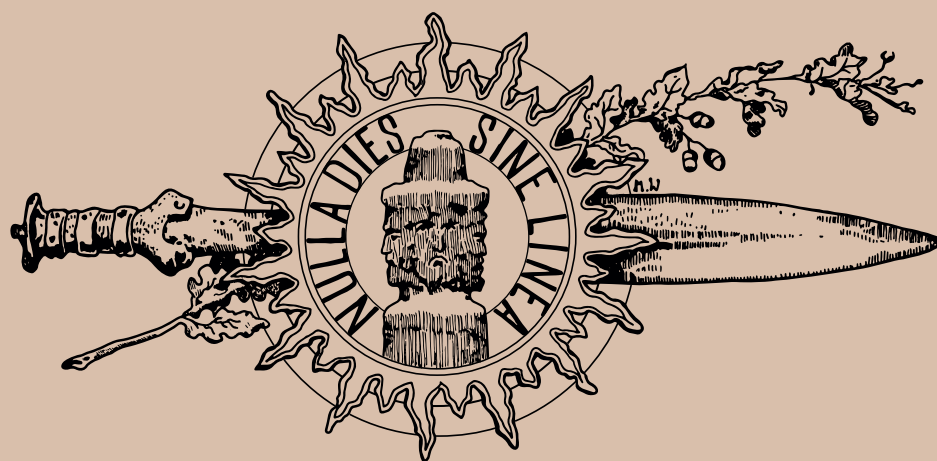


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VOLUME LIX

WORLD ARCHAEOLOGY

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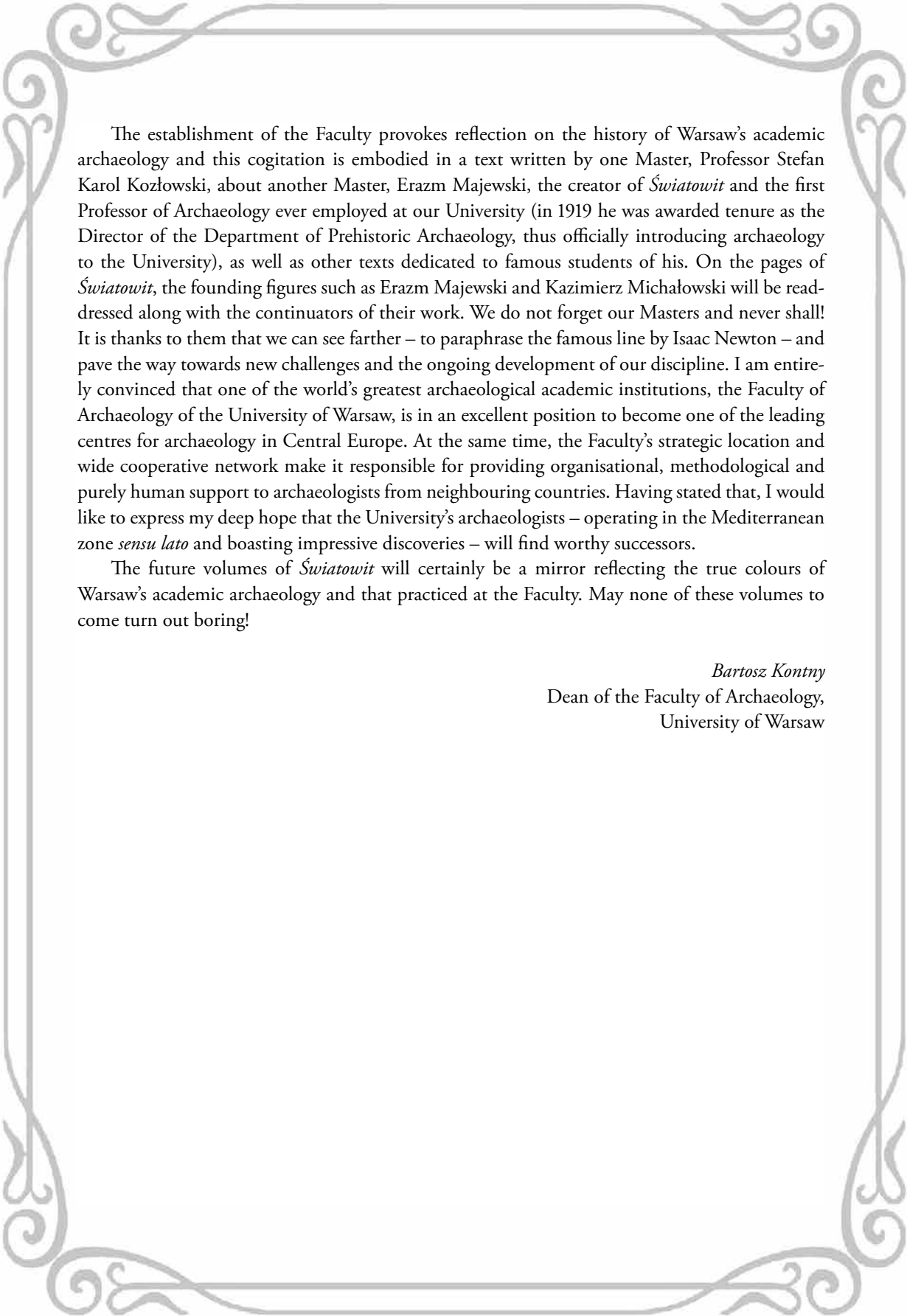


***“Full Astern!
Because the Past Has a Future!”***

Another volume of *Światowit* sees the light of day in unusual circumstances. On 1 September 2020, the former Institute of Archaeology was rebranded as the Faculty of Archaeology of the University of Warsaw. This means that the periodical became an official yearly issue of the Faculty. The release of its latest edition creates the perfect opportunity to present the new role envisioned for our discipline at the University. The structure of the new Faculty includes eleven departments and five labs, in addition to research teams. The represented areas of expertise carry on the traditions of the University’s archaeological research – from the Stone Age to the modern times, from the archaeology of the Americas, through the Mediterranean and Northern Europe to East Asia and the Pacific islands, from the mountains to the bottom of the seas and lakes. Non-invasive research methods hold a prominent place, without, however, depreciating bioarchaeology, archaeometry or underwater archaeology. It is worth noting that the names of departments testify to the continuation of tradition on the one hand (e.g. the Department of Classical Archaeology), while on the other hand demonstrating the blurring of boundaries between traditional academic disciplines (e.g. the Department of Archaeology of the Barbaricum and Roman Provinces). This way, the idea championed by the late Professor Tomasz Mikocki, long-time Director of the Institute of Archaeology and visionary (as time has clearly shown) came true. Professor Mikocki is credited with the unification of prehistorical and early-medieval archaeology with Mediterranean archaeology into a single academic degree course, as well as with the unprecedented development of archaeology at the University. Without the foundations that he laid, the Faculty would never have come to be!

The new structure entails a new logo that will accompany the Faculty. The previous one to which many of the staff (the undersigned included) are attached unfortunately does not meet modern editorial standards. I bid farewell to it not without regret and nostalgia, remembering the late Professor Jerzy Okulicz-Kozaryn who discovered the Roman brooch from the Wielbark Culture burial ground in Weklice which served as a model for the old logo. Modern design, however, does not eliminate tradition entirely – particular departments and laboratories will enjoy their own distinguishing signs which will reference archaeological finds.

The wide range of research carried out at the Faculty will undoubtedly be reflected in the contents of future issues of the *Światowit* periodical, as well as its supplementary series. The present volume highlights the international nature of our community and the studied topics as well as our diversity, even though texts on the Neolithic clearly dominate. Such focus results from the fact that the issue is dedicated to Professor Andrzej Kempisty, a long-time fellow of the Institute of Archaeology and recognised scholar of the Neolithic with an undeniable impact on the development of protohistoric archaeology.



The establishment of the Faculty provokes reflection on the history of Warsaw's academic archaeology and this cogitation is embodied in a text written by one Master, Professor Stefan Karol Kozłowski, about another Master, Erazm Majewski, the creator of *Światowit* and the first Professor of Archaeology ever employed at our University (in 1919 he was awarded tenure as the Director of the Department of Prehistoric Archaeology, thus officially introducing archaeology to the University), as well as other texts dedicated to famous students of his. On the pages of *Światowit*, the founding figures such as Erazm Majewski and Kazimierz Michałowski will be read-dressed along with the continuators of their work. We do not forget our Masters and never shall! It is thanks to them that we can see farther – to paraphrase the famous line by Isaac Newton – and pave the way towards new challenges and the ongoing development of our discipline. I am entirely convinced that one of the world's greatest archaeological academic institutions, the Faculty of Archaeology of the University of Warsaw, is in an excellent position to become one of the leading centres for archaeology in Central Europe. At the same time, the Faculty's strategic location and wide cooperative network make it responsible for providing organisational, methodological and purely human support to archaeologists from neighbouring countries. Having stated that, I would like to express my deep hope that the University's archaeologists – operating in the Mediterranean zone *sensu lato* and boasting impressive discoveries – will find worthy successors.

The future volumes of *Światowit* will certainly be a mirror reflecting the true colours of Warsaw's academic archaeology and that practiced at the Faculty. May none of these volumes to come turn out boring!

Bartosz Kontry
Dean of the Faculty of Archaeology,
University of Warsaw

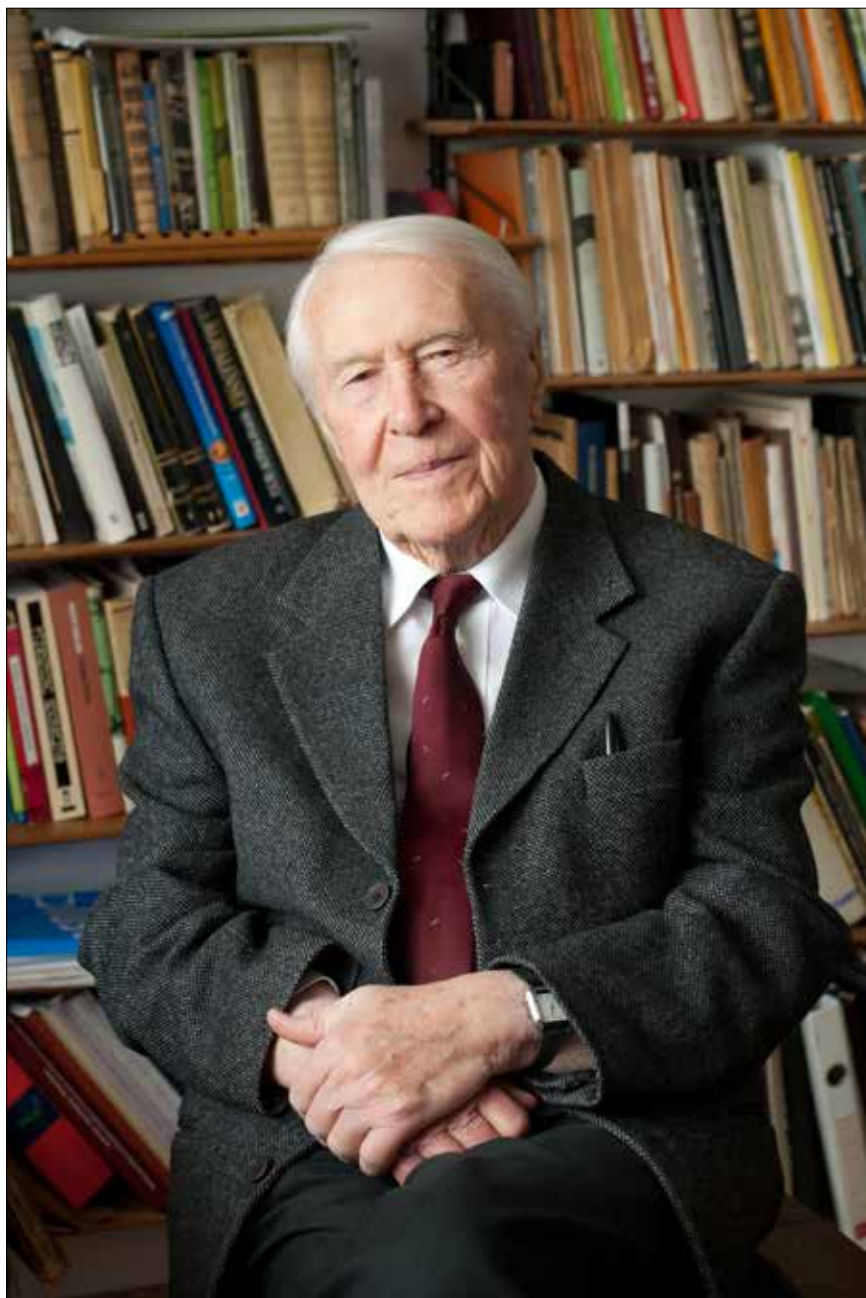


Photo by M. Dąbski

Professor Andrzej Kempisty

Ad multos annos!

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ANDRZEJ KEMPISTY AT NEMRIK

The place was North Iraq, Upper Mesopotamia – the heartland of ancient Assyria.

Karol Szymczak and I went there in the fall of 1986, dreaming of a prehistoric site to excavate, God permitting, an early Neolithic site, but a Paleolithic one would do as well.

The early Neolithic in the Near East is the cream of the crop, because it was there that the Lord decided to civilize HUMANITY by putting it on the road towards the NEW. God's miracle took place almost 9000 years ago. Archaeologists investigating this phenomenon in the Near or Middle East can feel ennobled, because so little is still known about the phenomenon. Indeed, the gaps in our knowledge are enormous and Mesopotamia is one such GAP.

We have some knowledge of the Neolithic in the mountains and foothills of the Zagros, we know a great deal about the early Neolithic in the Levant, but back in the 1980s the map between these regions was completely blank: a hole, nothing and ignorance, despite Robert Braidwood having a go at M'lefaat in the eastern Jezirah before leaving Iraq (yet another revolution).

Dreams are one thing, but we did not have any early Neolithic site in our sight. We knew the Paleolithic from Iraq and we found its traces with Waldemar Chmielewski in the region of Masnaa on the Euphrates. Next was Eski Mosul, 'old Mosul' in Turkish, a large Iraqi town in the north of the country. A government program had been initiated to build a huge dam on the river there, triggering extensive salvage explorations. We joined the program and went to Eski to look around on the high river terraces along the Tigris, near the village of Faidah. We found the Paleolithic as expected, mainly Acheulian and Mousterian, mostly surface finds and eroded sites. Our Iraqi hosts listened with wonder when told about the oldest artefacts that were even 300,000 or 400,000 years old. For them it was entirely unimaginable. Polish cartographers had surveyed the whole country, but still we had no topographical maps to use. Maps were top secret and not for us. This hardly stopped our endeavour, we used whatever we could get our hands on — a hand-drawn copy of a wall map from the Faidah district (Faidah means excellent Arabic brewed coffee), an old sketch from a friend. These documents were hardly credible, but certainly we were not completely blind in the region.

We took a car and, following the indications in these doubtful 'maps', we set out together with antiquities inspector Mohammed Zaki to explore the WORLD OF THE PALEOLITHIC. We had results, the maps appeared to be correct, we spent our time drawing flint tools that we had found and got excited about the material and its publishing potential.

Then one day, the devil (or angel) led us astray. We made a mistake reading our sketch map and set off to the north-west, intending to turn left into a side road. We took that turn, but it turned out not to be where we wanted to go. It must have been an ANGEL, because we drove straight into an early Neolithic aceramic site. We found NEMRIK.

We had some scrambled eggs for breakfast first, which Mohamed made a local woman prepare for us, and then we headed out. Just outside the village, we found a clay floor without vegetation, and on this floor, micro-flints and some sherds. A quick investigation revealed stratified levels, stone-cobbled pavements, flints, and bones, but no ceramic sherds. The flint tools could have matched PPN, but there are no published parallels; the pottery turned out to be of Bronze Age date – according to Morgait and Munchayev who came to visit and had just arrived in Mosul. "Ja wsedga miechtal o takoi stoyankie" [I have always dreamed of a site like this one], exclaimed Nikolai Bader. So we knew we hit the jackpot – we found PPN!

Back in Warsaw, we set about organising funds for research from the Polish Centre of Mediterranean Archaeology at the University of Warsaw. Getting through the red tape took time, but in the end we succeeded. We would go on to work at Nemrik and later at M'lefaat for several years.

The following year we worked in the spring and then again in the fall. Our Jubilarian, Andrzej Kempisty, was part of the team (Fig. 1). He would study the architecture we were expecting to find. Karol Szymczak and I looked at the flint industry, Ryszard F. Mazurowski – at the stone industry (he later made it his habilitation work). Rafał Koliński and Włodzimierz Bogusz helped out with the archaeology. Andrzej Reiche took care of



Fig. 1. The Nemrik team:
A. Kempisty, second from the right (after S. K. Kozłowski, *Nemrik. An aceramic village in northern Iraq*, Warsaw 2002, fig. 1, photo by A. Reiche).



Fig. 2. A. Kempisty in his Nemrik house no. 4, photo by A. Reiche.

the Assyrian tell at the southern end of the site and was responsible for photography, while I worked with stratigraphy and took it upon myself to manage the general logistics. Wojciech Borkowski would join us later, along with Kazimierz Kuźma.

In the spring of 1987, we flew to Baghdad. We then took a taxi to Mosul and set up headquarters in Niniveh. Our inspector was Kerim Joma Yusuf, a friendly soul, and we were off and running.

The site grid was established, each divided into quarters, and each trench was dug to culturally sterile levels by the stratigraphic method with the experienced hands of Shirkatis/technicians and workers brought to the site. Andrzej set the documentation standards: a 1:20 scale for the general plans, 1:10 for the houses, and 1:5 for the features and other details. Each excavator had their own group of workers. We did the drawings (plans and sections), Reiche took photos, all the architecture was studied under the close supervision of Master Kempisty who

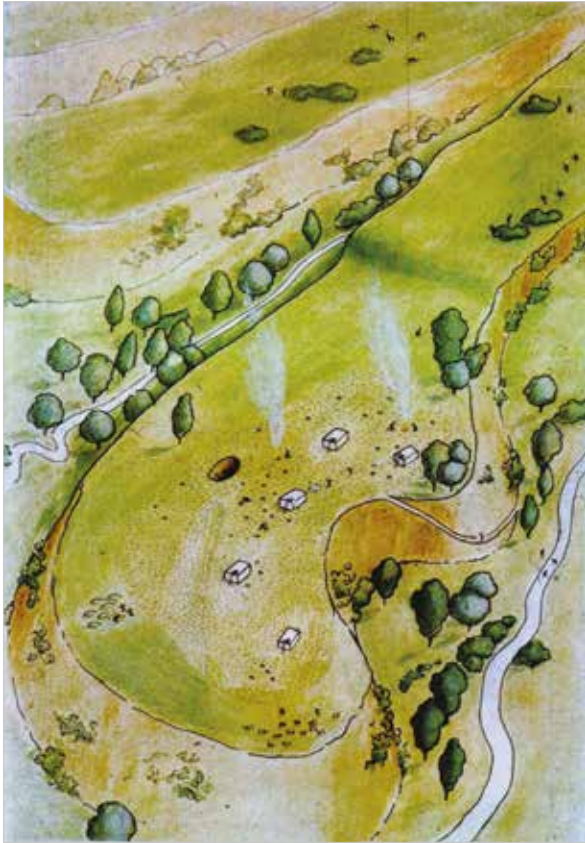


Fig. 3. Nemrik, the Neolithic site in its latest phase, drawing by A. Nowacki.

consulted, prompted, suggested, criticised, or praised (Fig. 2). He made sure that the house interiors were excavated with proper care, with attention being paid to the poorly-preserved plaster and the clay floor features, as

well as the small finds from their surface. Thanks to him we recognised wall plaster, traced foundation trenches, identified clay platforms and pillars, mapped post-sockets and stone installations mounted in the floors, and recorded small finds and heavy stone tools on these floors. We discovered stone trays leaning against the walls and statuettes of the gods of Nemrik alongside the burned skeleton of an inhabitant who lost his life trying to save one of the statuettes. Flint concentrations and professionally traced brick bondwork like the ones we found are seldom documented in the Near Eastern Neolithic. We explored and documented them thoroughly under the watchful eye of Master Andrzej who kept on smiling gently while checking stubbornly, advising, questioning, discussing, observing, and in effect standardising, improving, and enriching our understanding and documentation of the Neolithic architecture of Nemrik. He would be the one responsible for publishing it! (Fig. 3).

We spent time over details without losing sight of the bigger picture, took notes, documented the superposition of the houses, reaching an impressive number of more than twenty investigated features. These included round or oval, evolving into sub-rectangular. Habitations were naturally larger and more numerous, while the smaller ones served as stores and coffins.

Andrzej described them scrupulously and Małgorzata Dołęgowska continued this study in her diploma work at the University of Warsaw, supervised by the author. Her and Andrzej's work has just gone to the printers.

Operation Nemrik has thus ended in this fashion, 30 years later, to the glory of Polish archaeology, the glory of particular scholars and our Jubilarian – Andrzej Kempisty.

Glory to the victors!

KAROLINA BUGAJSKA

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CREMATION BURIALS OF STONE AGE HUNTER-GATHERERS ON THE EUROPEAN PLAIN

ABSTRACT

Cremation burials of Stone Age hunter-gatherers were found at 21 sites across the European Plain (including southern Scandinavia). In total, there are 54 graves and deposits containing bones of at least 89 individuals. Sites with Mesolithic cremations are unevenly spread over the European Plain and there are some regions where this type of burial was more common, such as the Seine Valley and the Low Countries, southern Scandinavia or north-eastern Poland. In all of these regions, the oldest burials are dated to the Early Mesolithic, which indicates a parallel and independent origin of this custom. Moreover, each region or even cemetery has its own features of the cremation rite. In both the Western European Plain and southern Scandinavia, most burials are dated to the Middle Mesolithic and there are only a few exam-

ples linked to the Late Mesolithic. North-eastern Poland, including the Dudka cemetery, is probably the only region where cremation was practised on a wider scale in the Late Mesolithic and para-Neolithic. The share of cremations among all burial types differs between regions and cemeteries. It was probably a dominant practice in the Middle Mesolithic in the Netherlands. In other cases, cremation probably involved a large part of the local hunter-gatherer society, for instance at the Dudka cemetery in Masuria or in the Middle Mesolithic of Vedbæk Fiord (Zealand), whereas at the cemeteries in Skateholm it amounted to only a few percent, suggesting that it was practised in the case of the deceased of particular status or in unusual circumstances only.

Keywords: Mesolithic, para-Neolithic, cremation, burial rite, European Plain

Introduction

Cremation has long been perceived as an unusual burial custom for the Stone Age, especially for the hunter-gatherer societies. The Mesolithic dating of such discoveries has sometimes been disputed.¹ In other cases, burned human bones from Mesolithic settlements used to be interpreted as a result of cannibalism rather than burial rite, even if bones were found in a formal grave and bore no cut marks.² Untypical burial types, other than primary inhumation, or unusual contexts in which bones were found (in settlement structures) were in most cases taken as 'evidence' for cannibalism.³ Over time, however, more undeniable Mesolithic cremation burials appeared, altering the general view on the nature of burned bones at Stone Age hunter-gatherer sites. Recent studies and new discoveries have shown that burial practices at the

time were more complex than previously believed and cremation was one of the many possibilities of dealing with the dead used since the Early Mesolithic.⁴

Cremation burials of Stone Age hunter-gatherers were found at 21 sites across the European Plain, including southern Scandinavia (Fig. 1). Additionally, at least several other sites yielded loose burned human bones. Their distribution is uneven and there are regions where cremation seems to have been more frequent. One of these is the Western European Plain, from north-eastern France (Seine Valley) to the Netherlands, where 11 graves with burned human remains were uncovered at eight sites (Fig. 1). The next region is southern Scandinavia, with eight sites and 14 graves. Only single cases of cremation come from Germany (Coswig) and western Poland (Pomorsko), whereas in north-eastern Poland such practices were more frequent (Fig. 1).

¹ Larsson 1982; Verlinde 1974.

² Kobusiewicz, Kabaciński 1991; Piasecki, Kapla 2003; Verlinde 1974; Wiercińska, Szlachetko 1977.

³ Kobusiewicz, Kabaciński 1991; Verlinde 1974.

⁴ Bugajska 2014; Bugajska, Gumiński 2016; Eriksen, Andersen 2016; Küßner, Schunke 2016; Niekus *et al.* 2016.



Fig. 1. Sites with Mesolithic and para-Neolithic cremation burials: a – cremation burials only; b – contemporary cremation and inhumation burials; c – noncontemporary cremation and inhumation burials; d – sites with loose burned human bones mentioned in the text; e – Early Mesolithic cremation burials (compiled by K. Bugajska).

Taking into account the uneven distribution of cremation burials, each region will be discussed separately in order to study the local character of the ritual. According to the original publications, the graves are linked to the Early, Middle or Late Mesolithic, based mostly on radiocarbon dates or, alternatively, on grave goods. It should be noted, however, that there are differences in the chronological periodisation of the Mesolithic in particular regions. In the Western European Plain (Low Countries, north-eastern France), the Early Mesolithic corresponds to the Pre-Boreal period (10 000–9000 BP conv.), the Middle Mesolithic – to the Boreal period and the beginning of the early Atlantic period (9000–7500 BP), while the Late Mesolithic starts in the Early Atlantic period (7500 BP).⁵ In southern Scandinavia, the Early Mesolithic (Maglemose culture) corresponds to the Pre-Boreal and Boreal periods (10 000–8000 BP), the Middle Mesolithic (Kongemose culture) to the first half of the Atlantic period (8000–6500 BP), and the Late Mesolithic (Ertebølle culture) to the second half of the Atlantic period (6500–5200 BP).⁶ Some cremations or loose burned human bones are linked to the para-Neolithic, i.e. to pottery-producing hunter-gatherer societies, which appeared in the discussed regions between 6000 and 5600 BP conv.⁷

The para-Neolithic societies in particular regions were descendants of former Mesolithic societies with regard to the economy, settlement system, burial rites and manufacturing. It should be added that such hunter-

gatherer societies are named differently in particular regions. For example, the Swifterbant culture is classified as Neolithic in the Low Countries, whereas the whole period of the Ertebølle culture is linked to the Late Mesolithic in Scandinavia.

Seine Valley (north-eastern France) and the Low Countries – the Western European Plain

Chronology of cremation burials and their relation to inhumations

The oldest cremation dated to the Early Mesolithic, 9090 ± 140 BP, comes from a rock shelter – Abri des Autours in Belgium (Table 1). In turn, the youngest burial comes from Concevreux in France and is directly dated to 6440 ± 30 BP, i.e. to the Late Mesolithic (Table 1). All other graves are considered Middle Mesolithic based on the grave goods or radiocarbon dates which range from 8465 ± 45 to 7760 ± 130 BP (Table 1). This indicates that on the Western European Plain, cremation was more commonly practised in the Middle Mesolithic.

In most cases, cremation is the only burial type found at a given site (Table 2). An exceptional case comes from an Early Mesolithic collective grave in a rock shelter, Abri des Autours in Belgium, where burned bones were deposited in one pit with inhumation burials (Table 2).

⁵ Louwe Kooijmans 2007; Meiklejohn *et al.* 2010; 2015.

⁶ Larsson 2017; Sørensen 2017.

⁷ Larsson 2017; Louwe Kooijmans 2007.

Table 1. Radiocarbon dates of cremation burials from the European Plain.
 Calibrated BC dates (95% confidence intervals) are based on: OxCal 4.3.2, IntCal 13 curve (Bronk Ramsey 2009).

Site	Country	No. of grave/pit	BP	Lab. No.	cal. BC (2σ)	Material	References
Abri des Autours	Belgium	burial AA2	9090 ± 140	OxA-5838	8700-7830	unburned bone	Poler, Cauwe 2002
Rotterdam	Netherlands	pit 60	8465 ± 45	GrA-43444	7587-7480	cremated bone	Niekus <i>et al.</i> 2016
La Chaussée-Tirancourt	France	pit 1	8460 ± 70	Gif-9329	7597-7356	hazelnut	Meiklejohn <i>et al.</i> 2010
La Chaussée-Tirancourt	France	pit 1	8360 ± 90	Gif-95471	7580-7179	animal bone	Meiklejohn <i>et al.</i> 2010
Rotterdam	Netherlands	pit 58	8435 ± 40	GrA-43393	7581-7381	cremated bone	Niekus <i>et al.</i> 2016
Oirschot V, 21	Netherlands	grave	8320 ± 40	GrA-13390	7515-7196	cremated bone	Meiklejohn <i>et al.</i> 2015
Rotterdam	Netherlands	pit 59	8135 ± 45	GrA-43443	7303-7047	cremated bone	Niekus <i>et al.</i> 2016
Loschbour	Luxembourg	pit?	7960 ± 40	Beta-132067	7041-6700	burned bone	Toussaint <i>et al.</i> 2009
Rotterdam	Netherlands	pit 59	7850 ± 35	GrN-33089	6806-6600	charcoal	Niekus <i>et al.</i> 2016
Rotterdam	Netherlands	pit 70	7830 ± 40	GrA-33087	6812-6574	charcoal	Niekus <i>et al.</i> 2016
Dalfsen	Netherlands	pit 4	7760 ± 130	GrN-7283B	7036-6416	charcoal	Meiklejohn <i>et al.</i> 2015
Rotterdam	Netherlands	pit 70	6770 ± 40	GrA-49738	5726-5626	cremated bone	Niekus <i>et al.</i> 2016
Concevreux	France	pit 3	6440 ± 30	GrA-37623	5479-5345	human bone	Bosset, Valentin 2013
Hammelev	Denmark	-	8980 ± 80	AAR-8195	8317-7837	cremated bone	Eriksen, Andersen 2016
Hammelev	Denmark	-	8800 ± 46	AAR-8196	8199-7685	cremated bone	Eriksen, Andersen 2016
Hammelev	Denmark	-	8870 ± 37	AAR-8783	8223-7838	cremated bone	Eriksen, Andersen 2016
Hammelev	Denmark	-	8760 ± 60	AAR-8197	8175-7601	cremated bone	Eriksen, Andersen 2016
Dammen	Sweden	-	8340 ± 40	GrA-14295	7521-7312	cremated bone?	Sjögren, Ahlström 2016
Nivå 10	Denmark	A128	7035 ± 35	AAR-14936	5995-5845	cremated bone	Jensen 2016
Motala-Strandvägen	Sweden	grave 7	6739 ± 62	Ua-44394	5737-5542	bone	Gumesson, Molin 2016
Motala-Strandvägen	Sweden	grave 1	6677 ± 40	Ua-30872	5664-5527	hazelnut	Gumesson, Molin 2016
Vedbæk Gøngehusvej	Denmark	grave N	6530 ± 60	K-6857	5616-5371	charcoal	Brinch Petersen, Meiklejohn 2003
Skateholm I	Sweden	grave 11	6290 ± 90	Lu-1835	5471-5046	charcoal	Larsson 1989
Nivå 10	Denmark	grave A144	6154 ± 45	AAR-12711	5221-4964	cremated bone	Jensen 2016
Coswig	Germany	-	7900 ± 50	GrA-22365	7029-6644	cremated bone	Küßner, Schunke 2016
Coswig	Germany	-	7920 ± 45	OxA-13472	7030-6657	cremated bone	Küßner, Schunke 2016
Mszano	Poland	grave 1	8890 ± 180	Gd-6432	8455-7589	bark	Marciniak 2001
Mszano	Poland	grave 1	8680 ± 130	Gd-6436	8207-7532	bark	Marciniak 2001
Mszano	Poland	grave 3	8650 ± 140	Lod 504	8208-7491	charcoal	Marciniak 2001
Mszano	Poland	grave 5	8100 ± 70	Gd-7932	7322-6822	charcoal	Marciniak 2001
Pomorsko	Poland	hearth pit	7740 ± 100	Gd-2704	7021-6412	charcoal	Kobusiewicz, Kabaciński 1991
Pomorsko	Poland	hearth pit	7330 ± 100	Gd-2700	6400-6020	charcoal	Kobusiewicz, Kabaciński 1991
Dudka	Poland	grave VI-8	5690 ± 25	KIA-19171	4584-4458	dog bone	Gumiński, Bugajska 2016
Dudka*	Poland	grave VI-17	6645 ± 30	Poz-3913	5629-5523	primary burial	Gumiński, Bugajska 2016

*grave without burned human bones, stratigraphically on the same level as grave VI-16

Table 2. Catalogue of Mesolithic and para-Neolithic cremation burials from the European Plain.

	Site	Region, country	Grave / pit / burial (individual)	Shape of pit/structure	Diameter (or length-width) / depth	Context	Other burials <i>in the grave</i> (at the site)	Number of burned individuals	Kind of cremation burial	Age and sex	Skeleton completeness
1	La Chaussée-Tirancourt	Seine Valley, France	pit 1	⬭	150 x 100 / 30	S, C?	(+♂)	3	S	adult; S (>45) I1 (3)	?
2	Concevreux	Seine Valley, France	pit 3	●	70 (-40) / 25	S	-	2	S	M; adult	?
3	Rueil-Malmaison	Seine Valley, France	burial 2	-	-	S, C?	(+P)	1	S?	adult	?
4	Abri des Autours	Belgium	collective burial AA2	●	100 / ?	RS, S	2 PD, (11 - PD, ♂)	I	S	young adult	3 (skull, feet)
5	Abri des Autours	Belgium	phalanxes deposit	-	-	RS, S	2♂	I	S	adult	hand phalanx
6	Dalfsen	Netherlands	pit 4	⬭	40 x 70	S, C?	-	1-2	S	M?, ♀? +child?	2 (upper part)
7	Oirschot 5, site 21	Netherlands	hearth (?) pit	●	50 / 45	S, E?	-	1	S	I2 (10-13)	2?
8	Rotterdam	Netherlands	pit 58	●	90 / 24	S, C	-	1	S	adult? 10-40	2
9	Rotterdam	Netherlands	pit 59	●	110 / 40	S, C	-	1	S	adult? ♀? 12-40	4
10	Rotterdam	Netherlands	pit 60	●	85 / 10	S, C	-	1	S	adult? 10-34	2
11	Loschbour	Luxembourg	burial 2	-	-	RS	(+P)	1	S	M, ♀	3
12	Hammelev	Jutland, Denmark	grave 1	●	15 x 27 / 5-6	sG	-	1	S	adult	3/4?
12	Nivå 10	Zealand, Denmark	grave A144	⬭	25 / 8	S, C	(P, ♂)	1	S	♂, >30-35	4?
14	Nivå 10	Zealand, Denmark	grave A127	●	20 / 5	S, C	(P, ♂)	1	S	-	1?
15	Nivå 10	Zealand, Denmark	grave A128	●	60 / 14	S, C	(P, ♂)	1	S	adult	3/4?






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	Amount of cremated bones (weight / number of fragments)	Colour of bones – way of burning	Deposition	Presence of container / wooden or stone structure	Burned grave goods *slight signs of burning	Unburned grave goods	Ochre	Charcoals (rests of pyre)	Period / culture	References	
1	1500 g	?	** **		(including backed blades, points), 			✓	l.M	Ducrocq <i>et al.</i> 1991; Ducrocq, Ketterer, 1995; Meiklejohn <i>et al.</i> 2010	
					hazelnuts?						
2	-	?	●	⊗	- fox, pine and stone marten (caudal vertebra, lower extremities); vertebra of 2 pikes	50 , 6 wild boar tusks (one worked), 50 red deer canines		-	mM	Bosset, Valentin 2013; Meiklejohn <i>et al.</i> 2010; Naze, Robert 2006	
3	215 g	w-g+UB (feet)	** ** 40 m ²	stones 12 m ²		?		?	mM	Meiklejohn <i>et al.</i> 2010; Valentin <i>et al.</i> 2008	
4		w	** **					-	eM	Cauwe 2001; Polet, Cauwe 2002	
5			●					-	eM	Cauwe 2001;	
6			** **		?			✓	mM	Meiklejohn <i>et al.</i> 2015; Verlinde 1974;	
7	87 g / 199	w-g	● ↑	wood? (Ps.)	288 (3 points, 2 backed blades, 3 retouched blades, 2 endscrapers)			✓	mM; RMS	Arts, Hoogland 1987; Niekus <i>et al.</i> 2016; Toussaint <i>et al.</i> 2009	
8	82 g	w	** **		2g (skull); 8 (backed blade; point)	5		-	mM; RMS	Niekus <i>et al.</i> 2016	
9	2001 g	w	** **		808 (backed blade, 2 points); stone macehead*; polishing stone*	5 (1 backed blade), 2 stones		✓	mM; RMS	Niekus <i>et al.</i> 2016	
10	151 g	w	** **		4g (wild boar?), 7 (2 points)	1		-	mM; RMS	Niekus <i>et al.</i> 2016	
11	390.4 g / 99	w-g	?		*			?	mM	Toussaint <i>et al.</i> 2009	
12		w	●	⊗	ulna, radius - wild cat, bone pin	flint axe, 14 - flakes		✓	-	eM; MC	Eriksen, Andersen 2016
12		w	●	⊗		1 - flake		-	mM, KC	Jensen 2016	
14		-	●	-				✓	-	-	Jensen 2016
15		w	** **/●					✓	mM, KC	Jensen 2016	

	Site	Region, country	Grave / pit / burial (individual)	Shape of pit/structure	Diameter (or length-width) / depth	Context	Other burials <i>in the grave</i> (at the site)	Number of burned individuals	Kind of cremation burial	Age and sex	Skeleton completeness
16	Vedbæk Boldbaner	Zealand, Denmark	grave 2	●	10 x 15 / 8	S, C?	(+P)	1	S	♀? adult	2 (upper part)
17	Vedbæk Gøngehusvej	Zealand, Denmark	grave Æ	●	40 – 50 / 70	S, C	(+P)	1	S	♀? A	2 (upper part)
18	Vedbæk Gøngehusvej	Zealand, Denmark	grave N	●	40 / 15	S, C	(+P)	5	S	♂A ♀A I2, I1, I1	4 ind. - 4? I1 – 2/4?
19	Dammen	Bohuslän, Sweden	destroyed grave?	-	-	S	-	1	S	-	
20	Skateholm I	Scania, Sweden	grave 11	∴	6 m ²	S, C	(P, ♂)	1	S	♂ M	3?
21	Skateholm I	Scania, Sweden	grave 20	●	-	S, C	(P, ♂)	1	S	-	2
22	Skateholm II	Scania, Sweden	grave XVIII	■	60	S, C	(P)	1	S?	♂S	3/4?
23	Strandvägen - Motala	Östergötland, Sweden	grave 1 / A42461	-	-	S, C	IP , (+P, ♂)	I	S	-	1/2?
24	Strandvägen - Motala	Östergötland, Sweden	grave 7 / A49247	-	-	S, C	IP , (+P, ♂)	I	S	-	1/2?
25	Strandvägen - Motala	Östergötland, Sweden	grave 17 / A58207	-	-	S, C	IP , (+P, ♂)	I	S	-	?
26	Coswig	Saxony, Germany	grave 1 / pit 156A	●	35 – 40 / 15	sG, S?	-	1	S	adult (ca. 29)	2
27	Pomorsko	Lubusz Land, Poland	hearth pit	-	-	S, E	-	1	S	child	?
28	Mszano	Dobrzyń Land, Poland	grave 1	●	90 x 200 / 120	S, C	?	2	P	♀A, I1	4?
29	Mszano	Dobrzyń Land, Poland	grave 3	●	200 x 90 / 140	S, C	?	1	P	I1	4?
30	Mszano	Dobrzyń Land, Poland	grave 5	●	250 x 150 / 160	S, C	?	1	P	-	4?
31	Wieliszew	Mazovia, Poland	skull	-	-	S	-	1	S	♂A	1 (skull)







CREMATION BURIALS OF STONE AGE HUNTER-GATHERERSON THE EUROPEAN PLAIN









	Amount of cremated bones (weight / number of fragments)	Colour of bones – way of burning	Deposition	Presence of container / wooden or stone structure	Burned grave goods *slight signs of burning	Unburned grave goods	Ochre	Charcoals (rests of pyre)	Period / culture	References
16		w	●					✓	mM; KC	Vang Petersen 1977; Brinch Petersen, Meiklejohn 2003
17		w	●	⊙	1 🐾 - blade	roe deer fawn (on ♀), 1 🐾 - blade (on ⊙)		-	mM; KC	Brinch Petersen, Meiklejohn 2003
18		b-w	●		5 🗡 - red deer, 5 ▲ C/V, 🐾, 🐾, 1 amber, 3 🐾 - blades		✓	✓	mM; KC	Brinch Petersen, Meiklejohn 2003
19			** few m ²					?	eM; MC	Sjögren, Ahlström 2016
20			** 10 m ²		🐾 (mixed with human): seal, wild boar, 🐾, 🐾, phalanges – C/V			✓	I.M; EC	Larsson 1980; 1989; Niemi 2001; Nilson-Stutz 2003;
21								-	I.M; EC	Larsson 1982; Nilson-Stutz 2003
22	1097 g	uneven	●	⊗ stones	flint axe?			-	I.M; EC	Larsson 1983; Nilson-Stutz 2003; Persson, Persson 1988
23			** ↑PI					?	mM	Gummesson, Molin 2016
24			**PI					?	mM	Gummesson, Molin 2016
25			**?					?	-	Gummesson, Molin 2016
26	30 g	w	**					✓	mM	Küßner, Schunke 2016
27		?	●/**			🐾?		?	mM	Kobusiewicz, Kabaciński 1991
28		partial burning		☞		16 frag. 🗡 wild boar ▲ frag., 1 amber	✓	✓	eM	Marciniak 2001
29		partial burning		≡ ☞		>100 frag. ▲ (elk, red deer, aurochs) chalk stone with hole			eM	Marciniak 2001
30		partial burning		≡ ☞		2 🐾 - microliths, ▲ frag., 2 amber		✓	eM	Marciniak 2001
31		yW	**			🐾?		-	I.M	Tomczyk <i>et al.</i> 2019; Wiercińska, Szlachetko 1977

	Site	Region, country	Grave / pit / burial (individual)	Shape of pit/structure	Diameter (or length-width) / depth	Context	Other burials <i>in the grave</i> (at the site)	Number of burned individuals	Kind of cremation burial	Age and sex	Skeleton completeness
32	Dudka	Masuria, Poland	grave VI-1 (ind. D-E)	-	-	S, C	3♂	2	S	D - child E - adult	D - 1?, E - 2
33	Dudka	Masuria, Poland	grave VI-2 (ind. F)	-	-	S, C	3P, 3♂	1	S	I2 / J	2
34	Dudka	Masuria, Poland	grave VI-4 (ind. A-I)		80 x 100 / 30	S, C	2♂	9+ 	S	♂M, ♂ 2♀, ♀M I1, I2, 2 adults	3 ind. - 4 2 ind. - 3 1 ind. - 2 3 ind. - 1
35	Dudka	Masuria, Poland	grave VI-6 (ind. B-C)	-	-	S, C	1P	2	S	B - child C - adult	B - 2 C - 1
36	Dudka	Masuria, Poland	grave VI-7 (ind. D-E)	-	-	S, C	1P, 2♂	2	S	2 adults	D - 2, E - 1
37	Dudka	Masuria, Poland	grave VI-8 (ind. A-B)	-	-	S, C	Ξ	2	S	A - adult, B - child	A - 2 B - 1
38	Dudka	Masuria, Poland	grave VI-9? (ind. C-7)	-	-	S, C	3♂?	1	S	adult	2?
39	Dudka	Masuria, Poland	grave VI-10 (ind. B-C)	-	-	S, C	1♂	2+ 	S	adult, I2 / Juv.	B - 2 C - 1
40	Dudka	Masuria, Poland	grave VI-11 (ind. B-D)	-	-	S, C	1P	3	S	I1, 2 adults	B-D - 4?
41	Dudka	Masuria, Poland	grave VI-13 (ind. G-H)	-	-	S, C	2B, 4♂	2	S	G - child H - adult	1; 2
42	Dudka	Masuria, Poland	grave VI-14 (ind. D-E)	-	-	S, C	1P, 2♂	2	S	adult, Juvenis?	4; ?
43	Dudka	Masuria, Poland	grave VI-15 (ind. A)	-	-	S, C	1♂ 	1	S	♂A	4
44	Dudka	Masuria, Poland	grave VI-16 (ind. C-J)		170 - 140 / 35	S, C	3♂	8	S	2♂A, ♀A, ♀M, I2, J, S, adult	1 ind. - 4 4 ind. - 3 2 ind. - 2 1 ind. - 1

CREMATION BURIALS OF STONE AGE HUNTER-GATHERERSON THE EUROPEAN PLAIN

	Amount of cremated bones (weight / number of fragments)	Colour of bones – way of burning	Deposition	Presence of container / wooden or stone structure	Burned grave goods *slight signs of burning	Unburned grave goods	Ochre	Charcoals (rests of pyre)	Period / culture	References
32	86 g / 104	w-g	● ↓					-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
33	91 g / 282	w	● ↓					-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
34	8253.5 g / 10700	3 w 3 w-g 2 b-g-br 1 br-cz	**		2 1 belemnite	2 wild boar tusks 1 ; 9 , 2 ; 1 1 ; 1 , sandstones	●	-	-	Bugajska, Gumiński 2016; Gumiński 2014; Gumiński, Bugajska 2016
35	187 g / 445	w br-g	● ↓		3			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
36	150 g / 151	w br-g	● ↓		3 , belemnite			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
37	152 g / 323	w (+l.g)	● ↓					-	l.M?	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
38	90.5 g / 50	d.g.-bl	●		2 ?			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
39	229 g / 767	w (+l.g) black	● ↓					-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
40	1383 g / 2844	w	● ● ● ↓		3 belemnite; 3 ▲ red deer; 1 ,			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
41	537 g / 1216	G - w-g H - d.g	● ↓		2			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
42	1017 g / 2111	w (+l.g)	● ↓		2			-	-	Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
43	1632 g / 1257	w	●	⊗	(wild boar)	hedgehog - skull; 1	●	-	-	Bugajska 2015; Bugajska, Gumiński 2016; Gumiński, Bugajska 2016
44	82505 g / 82505	2 w-l.g 4 w-b-g 2 br- black	**		belemnite, bone dagger 3 bone points (?)	5 ▲ (roe deer, elk); 3 , 35 , 2 ; , 2 ; 1	●	-	-	Bugajska, Gumiński 2016; Gumiński 2014; Gumiński, Bugajska 2016

	Site	Region, country	Grave / pit / burial (individual)	Shape of pit/structure	Diameter (or length-width) / depth	Context	Other burials <i>in the grave</i> (at the site)	Number of burned individuals	Kind of cremation burial	Age and sex	Skeleton completeness
45	Dudka	Masuria, Poland	grave VI-n-1 (ind. A)		45 x 55 / 10	S, C	-	1	S	adult	2?
46	Dudka	Masuria, Poland	grave VI-n-2 (ind. A)		40 x 55 / 10	S, C	-	1	S	adult	2?
47	Dudka	Masuria, Poland	grave VI-e-1 (ind. B)	-	180 / 20	S, C	I 	1	S	adult	2
48	Dudka	Masuria, Poland	pit VI-e-3 (ind. B)	-	170 / 20	S, C	IP 	1	S	-	1
49	Dudka	Masuria, Poland	grave VI-e-4 (ind. B)	-	70 / 25	S, C	IP ?	1	S	adult	2
50	Dudka	Masuria, Poland	grave VI-g-1, (ind. A)	-	1180 - 1100 / 30	S, C	?	1	S	adult	2?
51	Dudka	Masuria, Poland	ind. C-1	-	-	S, C		1	S	adult	2
52	Dudka	Masuria, Poland	ind. C-2	-	-	S, C	-	1	S	adult	2?
53	Dudka	Masuria, Poland	ind. C-3	-	-	S, C		1	S	adult	1?
54	Dudka	Masuria, Poland	ind. C-4	-	-	S, C	-	1	S	adult	2
55	Dudka	Masuria, Poland	ind. C-5	-	-	S, C	-	1	S	adult	2
56	Dudka	Masuria, Poland	ind. C-6	-	-	S, C	-	1	S	infans?	1
57	Dudka	Masuria, Poland	ind. C-8	-	-	S, C	-	1	S	adult	2?

Context: **sG** – single grave without settlement context, S – settlement site, RS – rock shelter, C – cemetery (presence of at least 2 graves), Ξ – cremation bones in/near dwelling/hearth pit. Other burials: (at the site); **in the grave**; P – primary inhumation, PD – intentionally disturbed primary burial;  – secondary inhumation.  – dog; kind of cremation burial: S – secondary deposit; P – primary, burning inside the grave. Deposition:  – bones scattered on the ground;  – loose in the pit;  – small, compact concentration;  – possible concentration;  – bones around the pit;  – burned bones above grave/pit/other burial. Age: I1 – Infans 1 (0-6 years); I2 – Infans 2 (6-15 years); J – Juvenis (15-20 years); A – Adultus (20-35 years); M – Maturus (35-55 years); S – Senilis (>55 years). Completeness of skeleton: 4 – complete; 3 – most bones, different parts of skeleton; 2 – only part of skeleton; 1 – single bones. Colour: w – white; g – grey; br – brown;

CREMATION BURIALS OF STONE AGE HUNTER-GATHERERS ON THE EUROPEAN PLAIN

	Amount of cremated bones (weight / number of fragments)	Colour of bones – way of burning	Deposition	Presence of container / wooden or stone structure	Burned grave goods *slight signs of burning	Unburned grave goods	Ochre	Charcoals (rests of pyre)	Period / culture	References
45	83.5 g / 15	black	☞		roe deer antler 1☞	7☞, 30☞, 1☞ 1☞, 1☞, 2☞, 4 belemnites	☼	-	-	Bugajska, Gumiński 2016; Gumiński 2014; Gumiński, Bugajska 2016
46	36.5 g / 18	w	**		49☞	3▲ (red deer, otter); 33☞ 34☞, 2☞, belemnite	☼	-	-	Bugajska, Gumiński 2016; Gumiński 2014; Gumiński, Bugajska 2016
47	91 g / 87	w-l.g	●? ☞?		?	?		-	-	-
48	6 g / 1	g	**					-	-	-
49	43.5 g / 18	d.g-b	●? ☞?		?	?		-	-	-
50	71.5 g / 49	w-l.g	**?			10☞, 1☞, 43☞ belemnite	☼	-	-	-
51	27.5 g / 17	w-y	●					-	-	-
52	67.5 g / 31	br-d.g	●					-	-	-
53	17 g / 11	d.g-b	●					-	-	-
54	26.5 g / 14	w-l.g	**					-	-	-
55	65.5 g / 54	w	●					-	-	-
56	0.5 g / 2	w	**					-	-	-
57	99 g / 33	black-g-b	●					-	-	-

b – blue; yw – yellowish-white; y – light yellow; l – light; d – dark; UB – unburned. Fragmentation: + – highly fragmented bones, – – large fragments of bones; ☞ – probable container? (bones highly packed in a pit), ● – wood plate; ≡ – horizontal wooden beams at the pit walls; || – wooden structure; ☞ – bark wrapping. Grave goods: ☞ – animal bone; ☞ – bird bones, ☞ – fish bones; ☞ – turtle carapace (fragment), ☞ – hedgehog jaw; ▲ – animal teeth; ☞ – animal tooth pendant; ☞ – flint (*+ quartzite), ☞ – fossil pendant, ☞ – fossil bead, ☞ – perforated shell, C/V – *Canis/Vulpes*; ☼ – ochre pebble. Period / culture: eM – Early Mesolithic, mM – Middle Mesolithic, l.M – Late Mesolithic, RMS – Rhine-Meuse-Scheldt Mesolithic; MC – Maglemose culture, KC – Kongemose culture, EC – Ertebølle culture, frag. – fragments.

At three other sites, cremations were not contemporary with primary or secondary inhumations. At Loschbour (Luxemburg), burned bones were older than the primary burial, whereas at Chaussée-Tirancourt and at Reuil-Malmaison (France), cremations were younger than secondary or primary inhumations.⁸

On a more local scale, cremation may have been the dominant funerary practice, for instance in the Middle Mesolithic in the Netherlands, when only cremation burials occurred. The burial rite probably changed there in the Late Mesolithic and cremation was replaced by inhumation, mostly by primary burials. Such tendencies also continued in the Swifterbant culture and the Hazendonk group. Additionally, loose human bones were also found, which indicates a more complex burial rite in these periods and, potentially, hints to the exposition of the dead on platforms.⁹ The only evidence of cremation practices at the time are burned loose human bones of at least two individuals found at Hoge Vaart in an early Swifterbant layer.¹⁰ Therefore, cremation was still practised but probably to a limited extent.

The relation between cremation and inhumation is different in the Seine Valley (northern France), where both kinds of burials occurred in parallel throughout the Middle and Late Mesolithic.¹¹ There are four Middle Mesolithic cremation burials which make up 33% of 12 individuals dated to that period (Table 3).¹² Unfortunately, Late Mesolithic burials are very rare and only three inhumations (Auneau, Villeneuve-la-Guyard) and one grave with two burned individuals (Concevreux) were uncovered.¹³ The total number of burials from the Seine Valley is admittedly small: 17 individuals (Table 3). It should be noted, however, that every third burial uncovered in this region is cremated and this cannot be a matter of chance. Therefore, it seems plausible that cremation concerned a considerable part of the local society in the Middle, and probably Late, Mesolithic.

General features of the cremation burial rite in the Western European Plain

The Early Mesolithic burials in Abri des Autours differ from other cremations in the region in the way that bones were deposited (Table 2). One cremation burial was placed in a pit together with two unburned incomplete skeletons (Fig. 2), most probably disturbed primary

inhumations from which particular bones were intentionally taken out in the Mesolithic.¹⁴ Some bones from the cremated skeleton are also missing, i.e. the skull and feet bones, but these could have been taken out earlier, when the remains were collected from the pyre.¹⁵ The second cremation is represented by hand phalanges only. These were deposited near a cave wall together with the unburned feet and hand phalanges of at least two individuals (Fig. 2).¹⁶ In both cases, the burned bones were placed in the cave as a secondary deposit, i.e. the incineration of the body was conducted in another place and only afterwards the bones were collected and brought to the destination grave. It is worth noting that burned remains at Abri des Autours were generally treated in the same way as unburned skeletons. In both cases, it was a multi-step ritual in which the bones of the deceased were intentionally selected, divided into parts, removed and deposited in secondary places.¹⁷

The Middle and Late Mesolithic cremation burials in the Western European Plain were usually secondary deposits (Table 2), similarly to those from Abri des Autours. An exception of this rule could be the case for Reuil-Malmaison, for which it is difficult to determine whether the burial was a secondary or primary one. Burned human bones of a single individual were scattered across 40 sq. metres and appeared among predominantly burned stones which formed a large stone pavement (?). Moreover, burned bones were presumably associated with a layer of ashes.¹⁸ Therefore, the whole 'structure' from Reuil-Malmaison could be the remains of a funeral pyre. On the other hand, bones from different parts of the skeleton were mixed together and no anatomical relations were observed. Moreover, unburned or, rarely, singed animal bones were present among the stones as well. Hence, it cannot be excluded that the burning of the dead took place elsewhere and the stones were exposed to fire in other circumstances.¹⁹

Possible combustion of the body *in situ* was also suggested for the burial at Oirschot,²⁰ although the human remains there were found in a distinct concentration located just above the hearth pit and there can be no doubt that the bones were purposely collected after cremation and placed together as a secondary deposit. The partial scatter of the bones was interpreted as potential evidence for burning at the site.²¹

⁸ Meiklejohn *et al.* 2010; Toussaint *et al.* 2009.

⁹ Louwe Kooijmans 2007.

¹⁰ Meiklejohn *et al.* 2015, 28–29.

¹¹ Meiklejohn *et al.* 2010.

¹² Meiklejohn *et al.* 2010.

¹³ Meiklejohn *et al.* 2010.

¹⁴ Cauwe 2001, 157; Polet, Cauwe 2002.

¹⁵ Cauwe 2001, 157.

¹⁶ Cauwe 2001, 157.

¹⁷ Cauwe 2001, 153–158.

¹⁸ Valentin *et al.* 2008, 24–25.

¹⁹ Valentin *et al.* 2008, 24–25.

²⁰ Arts, Hoogland 1987, 179; Louwe Kooijmans 2007, 558.

²¹ Arts, Hoogland 1987, 179.



Fig. 2. Abri des Autours, a collective burial in a rock shelter: 1 – human adult bones; 2 – burned human bones; 3 – child bones; 4 – deposit of burned and unburned human phalanges (after Cauwe 2001, fig. 11).

Except for Oirschot and Rueil-Malmaison, burned remains were usually buried in circular or oval pits which were sometimes quite large, with diameters reaching ca. 1 to 1.5 metres. Generally, bones were loosely spread inside the pit without any traces of containers or grave structures (Table 2). The possible presence of a perishable container is reported only for the burial at Concevreux, where bones formed a distinct concentration inside the pit.²²

In most cases, bones were evenly burned until they turned white or white-grey and became heavily fragmented (Table 2). Burned skeletons were generally more or less incomplete. At Dalfsen, for example, only the upper part of a skeleton was represented. Fragments of

a skull and shafts of long bones were deposited in pits 58 and 60 at Rotterdam, and the amount of bones was very scarce in both cases (82 g and 151 g, respectively). At Oirschot, Rueil-Malmaison and Loschbour, all parts of the skeleton were represented, but the weight of the remains was too small for a whole individual, so these burials contained only a part of the remains of the deceased (Table 2). A large amount of bones (1.5 kg) was found at La Chaussée-Tirancourt, but there were at least three individuals and it is unclear how many bones belonged to each of them.²³ An undoubtedly complete skeleton was reported only for pit 59 at Rotterdam (Table 2). All in all, the incompleteness of most skeletons suggests that the selection and division of burned remains was a common practice in the Mesolithic of the Western European Plain.

Charcoals that presumably come from a funeral pyre (Table 2) appeared in four graves (36% of cases). This indicates that it was not a rule, and in some cases bones were taken together with ashes, while in others they were most probably carefully collected and cleaned before being buried in the final grave.

Ochre was not present in any except one grave (Table 2): the burial at Chaussée-Tirancourt, where lumps of ochre were found.²⁴

In contrast to the Early Mesolithic burial from Abri des Autours, the Middle and Late Mesolithic cremations usually contained grave goods, at least part of which were burned (Table 2). There are two possible exceptions: the presence of animal bones in the grave at Dalfsen is unsure,²⁵ as well as the connection between burned human and unburned animal bones at Rueil-Malmaison.²⁶

Flint or quartzite artefacts, found in six graves (Table 2), comprise the most frequent category of grave goods. In five cases, the assemblages included burned and unburned pieces, whereas in Concevreux, all flints were unburned (Table 2). The number of lithic elements varies greatly, from several to hundreds, though retouched pieces were always very scarce (Table 2).

Unburned six wild boar tusks and 50 pendants made of red deer canines appeared only in the Late Mesolithic grave at Concevreux (Table 2). Adornments were also found at Loschbour and Chaussée-Tirancourt, but these were perforated shells (Table 2). In turn, stone artefacts, including one burned stone mace-head, were found only in pit 59 at Rotterdam.²⁷

Animal bones were found in at least five graves and they were usually burned (Table 2). A small number of

²² Naze, Robert 2006.

²³ Durocq, Ketterer 1995; Meiklejohn *et al.* 2010.

²⁴ Durocq *et al.* 1991, 275; Durocq, Ketterer 1995, 253.

²⁵ Verlinde 1974, 116.

²⁶ Valentin *et al.* 2008.

²⁷ Niekus *et al.* 2016, 580, figs 5, 9.

burned animal bones was mixed with human remains in two graves at Rotterdam and Loschbour (Table 2). The same was probably the case in Chaussée-Tirancourt, however the exact number of animal bones is not given.²⁸ A more diversified assemblage of burned animal bones was found only at Concevreux and included the vertebrae of two pikes and the lower extremities of a pine marten, a stone marten and a fox (Table 2).

Southern Scandinavia

Regional distribution, chronology and relation to inhumations

In southern Scandinavia, as many as 14 graves with burned human bones of at least 18 individuals were uncovered, which comprise about 8% of Mesolithic burials.²⁹ Cremation was generally rare but geographically widespread. It appeared in several regions of Scandinavia, such as north-eastern Zealand (three sites with six graves), southern Jutland (Hammelev), Scania (three graves at Skateholm), Östergötland (three graves at Motala) and Bohuslän (Dammen) (Fig. 1, Table 2).

The oldest cremation burial in Scandinavia comes from Hammelev, for which four radiocarbon dates were obtained, ranging from 8980 ± 80 BP to 8760 ± 60 BP (Table 1). The next Early Mesolithic cremation was uncovered at Dammen (south-western Sweden), and it is dated to 8340 ± 40 BP (Table 1). Burned human bones were also found at the Early site at Melsted on Bornholm, but they were scattered outside a grave context.³⁰ In general, cremation was practised since the Early Mesolithic and it appeared in remote regions of southern Scandinavia. It should be emphasised that Early Mesolithic burials are generally rare in Scandinavia but show significant variety. Apart from cremations, there were primary burials in different positions, disturbed burials, secondary inhumations, as well as presumably sunken burials.³¹ This indicates that there were no general rules regarding burial rites and many different ways of dealing with the dead were practised, depending on local customs.

It is worth mentioning that the cremation burial from Hammelev is the only Mesolithic grave found in southern Jutland. All other graves and cemeteries from Jutland were uncovered in its north-eastern region. Moreover, these were exclusively primary burials dated to the Late Mesolithic.³² It is difficult to ascertain whether

this is a matter of regional differences in burial customs or a change from cremation in the Early Mesolithic to primary inhumation in the Ertebølle culture.

The majority of cremation burials from Scandinavia are linked to the Kongemose culture, i.e. the Middle Mesolithic (Table 1). This is true for almost all burials from Zealand (Tables 1–2). The Middle Mesolithic dating was also confirmed for two graves (nos. 1 and 7) with burned remains at Motala in south-central Sweden (Table 1). However, the dates were not obtained directly for burned bones but for inhumations from the same graves.³³ Cremation was still practised in the Late Mesolithic (Ertebølle culture). The youngest graves come from the cemeteries at Skateholm in southern Sweden, of which only one (grave 11) was directly dated to 6290 ± 90 BP (Tables 1–2). A Late Mesolithic date of 6154 ± 45 BP was also obtained for grave A 144 at Nivå on Zealand (Table 1).

Cremations comprise about 7% of Middle and Late Mesolithic burials (Table 3). It is difficult to indicate the share of cremation burials for these periods separately because many cemeteries were continuously used throughout a long time.³⁴ Middle and Late Mesolithic cremation burials always appeared in cemeteries where inhumations were contemporaneously present. Therefore, the relation between inhumation and cremation rites should rather be considered on a local scale, and even for particular cemeteries.

An interesting region is Vedbæk Fiord, which yielded four sites with Mesolithic graves: Boldbaner, Bøgebakken, Gøngehusvej and Vægnet Nord. There were 39 burials (individuals), of which cremations comprised 18% (Table 3). It is important, however, that cremation did not appear at all in the biggest cemetery at Bøgebakken, whereas at Gøngehusvej and Boldbaner, it amounted to 46% of all the individuals (Table 3). Perhaps this reflects a chronological change in burial rites since almost all graves from Boldbaner and Gøngehusvej, except one, are linked to the Kongemose culture, whereas the cemetery at Bøgebakken – to Ertebølle.³⁵ Cremation was still practised in Vedbæk Fiord in the Ertebølle period, but this is indicated only by loose burned human bones at Maglemosegaard.³⁶ Hence, it seems that burial customs in the region became more unified in the Late Mesolithic (primary burials in a supine position), and the role of cremation decreased. It is interesting, however, that at Nivå, which is located very close to Vedbæk, cremation was practised continuously throughout the

²⁸ Ducrocq, Ketterer 1995.

²⁹ Bugajska 2014.

³⁰ Becker 1952, 100.

³¹ Bugajska 2014.

³² Bugajska 2014, fig. 1, table 9.

³³ Gummesson, Molin 2016.

³⁴ Bugajska 2014.

³⁵ Bugajska 2014.

³⁶ Brinch Petersen, Meiklejohn 2003, 491.

Table 3. Percentage share of cremation burials in different regions and cemeteries.

Region / Cemetery	Total number of burials	Cremation burials
Seine Valley (France) – Middle Mesolithic ¹	12	4 (33%)
Seine Valley (France) – Late Mesolithic ¹	5	2
Netherlands – Middle Mesolithic ²	5	5 (100%)
Scandinavia, Early Mesolithic ^{3,4}	11	2 (18%)
Scandinavia, Middle-Late Mesolithic ³	219	16 (7%)
Vedbæk Boldbaner and Gøngehusvej ³	15	7 (47%)
Vedbæk Bøgebakken ³	23	-
Vedbæk Fjord ³	39	7 (18%)
Nivå ³	15	3 (20%)
Motala-Strandvägen ⁴	24	3 (12.5%)
Skateholm I ³	62	2 (3%)
Skateholm II ³	22	1 (4.5%)
Skateholm I-III ³	85	3 (3.5%)
Germany ³	25	1 (4%)
Poland (excluding Dudka) ³	24	min. 5 (21%)
Dudka	114	50 (44%)

¹ number of burials according to: Meiklejohn *et al.* 2010.

² number of burials according to: Meiklejohn *et al.* 2015.

³ number of graves according to: Bugajska 2014 and Gummesson, Molin 2016.

⁴ number of graves according to: Gummesson, Molin 2016.

Kongemose and Ertebølle periods and comprised 20% of all individuals (Table 3).³⁷

Cremation played a less prominent role at cemeteries in Sweden. It was observed in ca. 12.5% of 24 burials at Motala-Strandvägen and only 3.5% of burials in both cemeteries at Skateholm (Table 3). It seems that at Skateholm, incineration may have been practised only in the case of particular individuals or unusual circumstances. It is important to note that cemeteries at Skateholm are dated to the Late Mesolithic, similarly to Vedbæk

Bøgebakken,³⁸ so the small percentage of cremations could have resulted from the increasing role of primary inhumation at the time.

General features of cremation rites in Scandinavia

All cremation burials in Scandinavia, including the early Mesolithic ones, were secondary deposits (Table 2). Burned remains were usually placed in separate graves, except for at least two graves at Motala where a small amount of burned remains was added just above the primary burials.³⁹

Burned bones were usually put in small rounded pits whose diameter ranged from 15 to 40 centimetres (Table 2). A larger rounded pit (diameter of ca. 60 cm) was reported for grave A128 at Nivå (Fig. 3), and an exceptional, rectangular pit for grave XVIII at Skateholm II (Table 2). Grave 11 at Skateholm I is the only grave in Scandinavia where the burned bones of one individual were scattered over an area of 11 sq. metres. Instead of a pit, there was probably a wooden construction above the burial, as indicated by the presence of very small rounded pits, interpreted as postholes.⁴⁰

In some cases, the cremated remains were probably deposited in containers. That may be the case for the burial at Hammelev and grave A144 at Nivå, where the bones remained in a very compact concentration (Table 2; Fig. 4). In turn, the burned bones in grave Æ from Vedbæk Gøngehusvej were deposited on a wooden plate, as indicated by a black lens-shaped stain just below the human remains (Table 2).⁴¹

Almost all graves contained the bones of a single cremated individual. An exception to this rule is grave N at Gøngehusvej, where the remains of at least five individuals were identified: two adults (female and male) and three children (Table 2; Fig. 5). The bones of all individuals were mixed and were similarly burned to a white-blue colour, so it is possible that the deceased were burned together on a pyre and then buried in one grave.

The completeness of the skeletons is diversified. At least eight individuals were represented by most or even all bones (Table 2). In turn, in two cases only the upper parts of the skeleton were present (Boldbaner, grave Æ at Gøngehusvej), whereas at least five graves contained only a small amount of burned remains (Table 2).

Grave goods appeared in six graves (43%). In three cases, all of them were burned, another two burials contained mixed assemblages, and in one grave only a single unburned flint flake was found (Table 2). It

³⁷ Jensen 2016.

³⁸ Bugajska 2014.

³⁹ Gummesson, Molin 2016, 150.

⁴⁰ Larsson 1980; 1989, 372.

⁴¹ Brinch Petersen, Meiklejohn 2003, 489.



Fig. 3. Nivå, grave A128, a small amount of burned human remains deposited in a large rounded pit with a diameter of ca. 60 cm (after Jensen 2016, fig. 5).

should be noted that the unburned offerings were almost exclusively flint artefacts, while the burned ones were more diversified and included animal remains, tooth pendants, amber, a bone pin and flints (Table 2).

Flints constituted the most frequent category of grave goods and were found in five graves (Table 2). In most cases, it was a single flake, a blade or an axe. As an exception, the Early Mesolithic burial at Hammelev contained a larger set of unburned flints comprising 14 flakes and an axe (Table 2; Fig. 4A). Tooth pendants,

a bone pin and amber beads appeared only in grave N at Gøngehusvej. A single bone pin was also found at Hammelev (Table 2).

Animal bones were present in four graves; in three cases they were burned and mixed with human remains. The burial from Hammelev contained two bones of a wild cat, the ulna and radius (Table 2). Larger assemblages of animal remains appeared in two graves: no. 11 at Skateholm I and N at Gøngehusvej. In both cases, these were fish and bird bones, as well as the remains of *Canis/Vulpes* (teeth or phalanges). The grave from Skateholm additionally contained seal and wild boar bones (Table 2). Uniquely, a whole unburned skeleton of a roe deer fawn was deposited just above grave Æ at Gøngehusvej (Table 2). It should be added that it is the only grave with a special arrangement of the grave offerings where, apart from the fawn on the top, a single unburned flint blade was placed just below the human remains, in the middle of a presumed wooden plate.⁴²

Eastern Germany – western Poland

Cremation burials are very rare in the Central European Plain, i.e. in eastern Germany and western Poland, where only two burials were uncovered, one at Coswig in eastern Saxony and another at Pomorsko in western Wielkopolska (Fig. 1). However, Mesolithic graves are generally rare in these areas and have mostly been found beyond Mesolithic settlement contexts (Table 3).⁴³

It is worth noting that both burials are similarly dated to the Middle Mesolithic. The bones from Coswig



Fig. 4. Burned human bones deposited in containers: A – Hammelev (Jutland), an Early Mesolithic burial with unburned flints as grave offerings (after Eriksen, Andersen 2016, fig. 2); B – Nivå (Zealand), grave A144, Late Mesolithic (after Jensen 2016, fig. 9).

⁴² Brinch Petersen, Meiklejohn 2003.

⁴³ Bugajska 2014.



Fig. 5. Vedbæk Gøngehusvej, grave N with burned remains of at least five individuals: two adults and three children (after Brinch Petersen, Meiklejohn 2003, figs 61.4–61.6).

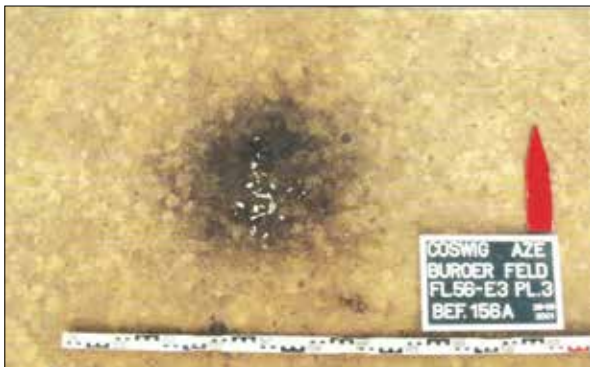


Fig. 6. Cremation burial at Coswig in Saxony (after Küßner, Schunke 2016, fig. 10).

were directly dated to 7900 ± 50 BP and 7920 ± 45 BP, whereas the charcoals from the settlement structure at Pomorsko yielded dates of 7740 ± 100 BP and 7330 ± 100 BP (Table 1).⁴⁴

The burials from Coswig and Pomorsko are completely different in the way the bones were deposited. Human remains in Coswig were scarce and spread within a small pit (Fig. 6), whereas at Pomorsko, the burned bones of a child were mixed (?) with animal remains and placed in a hearth pit. The exact location of the human bones is not given⁴⁵ so it is impossible to ascertain whether they were scattered across the whole structure or rather deposited in a single concentration. The second option seems to be more likely, because some clusters of bones were marked on the figure of the hearth pit.⁴⁶ Some flint artefacts could have been associated with the burial at Pomorsko, whereas at Coswig no grave goods were found whatsoever (Table 2).

North-eastern Poland: region of ‘unusual’ cremation burials

Cremated human remains were found at five sites in north-eastern Poland, including two sites with loose burned human bones (Fig. 1).

The oldest burials in the region were found in Mszano and are dated to the Early Mesolithic (Table 1). At least five graves were found at the cemetery, but human bones were preserved only in three of them and were in a poor condition.⁴⁷ The burials from Mszano are unique due to the primary character of cremation, i.e. burning of the body directly within the grave pit (Table 2). It was possible to determine the position of the bodies, as well as to ascertain that the skeletons were only partially burned.⁴⁸ There were also the remains of a bark wrapping around the bodies and a wooden construction which consisted of horizontal beams placed one by one at the walls of the pit (Table 2). Fragments of animal tooth pendants appeared in all three graves and were probably personal adornments of the deceased (Table 2). All graves also contained pieces of amber which were deposited in smaller pits located next to each grave.⁴⁹

Wieliszew in Masovia is an example of a Late Mesolithic partial burial of a skull, which must have been deposited on the settlement site without a formal grave context since bone fragments were scattered across a large area. The cranium from Wieliszew was originally interpreted as evidence of cannibalism because of the cut marks on the skull.⁵⁰ However, a recent re-examination of the skull revealed that the long incision was not a cut mark but a healed trauma.⁵¹

Numerous burned human bones were also found beyond formal grave contexts at Grądy-Woniecko and

⁴⁴ Kobusiewicz, Kabaciński 1991.

⁴⁵ Kobusiewicz, Kabaciński 1991.

⁴⁶ Kobusiewicz, Kabaciński 1991, fig. 4.

⁴⁷ Marciniak 2001.

⁴⁸ Marciniak 2001.

⁴⁹ Marciniak 2001.

⁵⁰ Wiercińska, Szlachetko 1977.

⁵¹ Tomczyk *et al.* 2019.

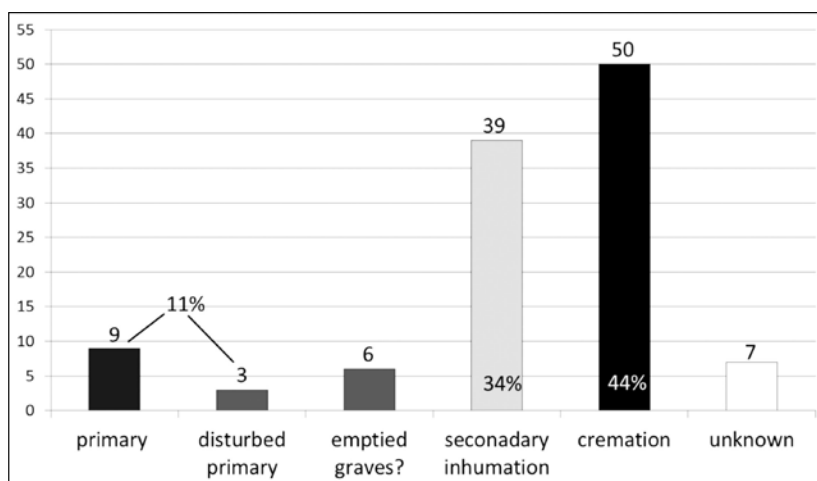


Fig. 7. Dudka cemetery (Masuria). Percentage share of different burial types (compiled by K. Bugajska).

Leśna Góra in northern Masovia. At both sites, bones formed more or less visible concentrations which may represent separate cremation burials.⁵² This suggests that a kind of cremation burial, in which the remains were placed just on the surface of the ground, may have been a common practice in north-eastern Poland.

Dudka cemetery, Masuria, north-eastern Poland: cremation as a multi-step burial rite

The cemetery at Dudka was used in the Mesolithic and para-Neolithic (Zedmar culture). Unfortunately, reliable radiocarbon dates are available for only two graves at the cemetery and there are no direct dates for burned bones (Table 1).⁵³

The cemetery at Dudka is exceptional on the European Plain because of a large number of cremation burials, at least 50, which comprise 44% of the 114 individuals determined at the cemetery (Table 3; Fig. 7). All cremation burials at Dudka are secondary deposits. Burned bones were usually placed in the same grave, with primary burials in the sitting position and secondary inhumations, which is a rare custom in the Mesolithic of the European Plain (Fig. 8). In some cases, burned bones were also added to disturbed graves from which selected bones or even whole skeletons of primary burials were taken out (Fig. 8).

It is worth noting that the proportion of secondary inhumation is also exceptionally high at the Dudka cemetery – 34% (Fig. 7) – and many loose human bones were also found in the settlement area of the site. This in-

dicates that local hunter-gatherers followed a multi-step burial rite which consisted of a temporary burial within the settlement area for the time needed for the soft tissue to decompose, after which the bones were collected and carried to a destination grave at the main cemetery.⁵⁴

Cremation is in fact another kind of multi-step ritual, if the body is burned on a pyre and then the collected bones are deposited in a final grave. The combustion played the same role as a temporary burial, i.e. the bones were cleaned from the soft tissue. Therefore, cremation was an alternative for multi-step inhumation and collected burned bones could be treated in the same way as unburned bones in the next steps of the ritual. They were undoubtedly selected and divided into parts because the majority of cremated burials at Dudka are represented by incomplete skeletons, similarly to secondary inhumations (Fig. 9). Only in few cases all the bones of particular individuals were deposited in final graves. Moreover, the bones of individuals who were buried in the same grave were often burned in a different manner, suggesting that they were collected from different pyres and at different times (Table 2).

No remains of a funeral pyre appeared in the graves at Dudka (Table 2). This may have resulted from the fact that the bones were carefully collected from the pyre and, perhaps, cleaned. Charcoals from pyres may have also been lost if bones were stored over a longer period of time and repacked before their final deposition at the cemetery.

The way of burning is very diversified at Dudka. Four main categories were distinguished: 1 – highly fragmented white bones with a soft, floury surface (Fig. 10A), 2 – white, yellowish-white or light grey bones, extremely

⁵² Piasecki, Kapla 2003; Wawrusiewicz *et al.* 2017, 56.

⁵³ Gumiński, Bugajska 2016.

⁵⁴ Bugajska, Gumiński 2016.

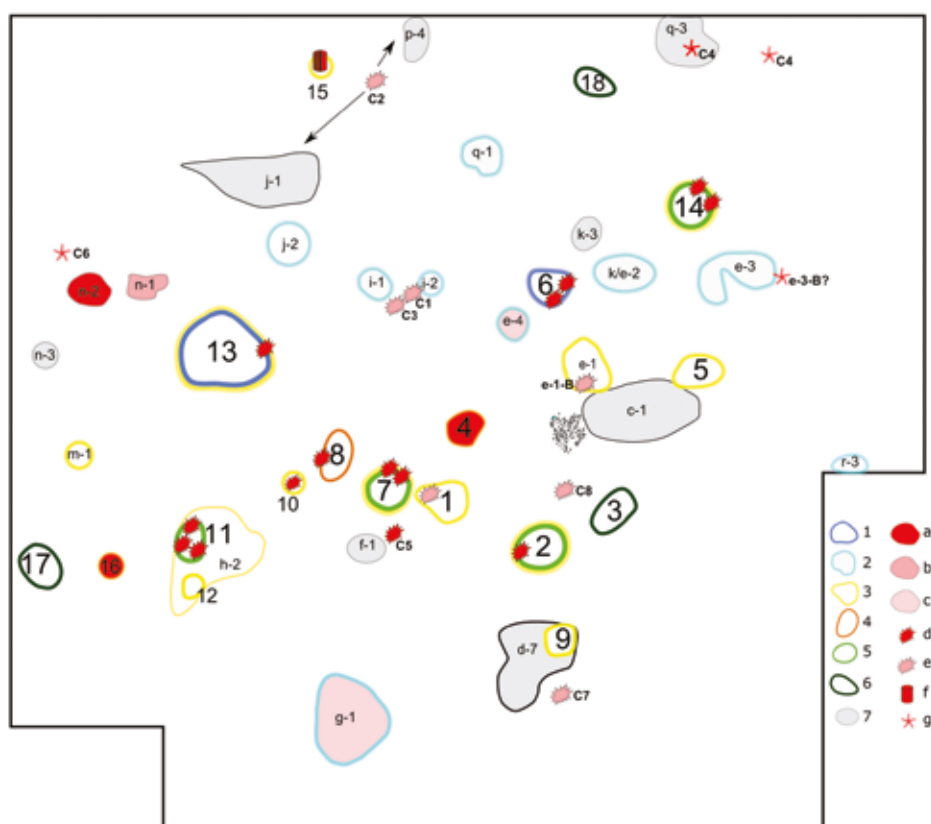


Fig. 8. Dudka, plan of the cemetery (Masuria, north-eastern Poland). 1 – grave with disturbed sitting burials (selected bones of particular individuals were purposely taken out); 2 – emptied graves (a whole skeleton was intentionally taken out); 3 – graves with secondary inhumation burials; 4 – grave with a secondary burial of a dog; 5 – graves with sitting primary burials; 6 – graves with primary burials placed on the side or back; 7 – pits of an unknown purpose. The manner of deposition of burned bones: a – loosely in the pit; b – small number of bones placed around the pit; c – manner of deposition unknown, small number of bones inside the pit; d – concentration of burned bones at the top of the grave; e – possible concentration of burned human bones; f – burned bones deposited in a container; g – single bones of an individual (compiled by K. Bugajska).

hard, strongly deformed and slightly fragmented (Fig. 10B, 14D), 3 – bones unevenly burned to a blue-white or grey colour (Fig. 11), 4 – slightly and unevenly burned brown-black bones (Fig. 12).

Burned bones were deposited in different ways at Dudka. They were often placed in concentrations located at the top of graves or pits, which was the case for at least 26 individuals (Fig. 8; Table 2). In four graves, burned bones of at least 19 individuals were deposited loosely in the pit. This was the case for graves VI-4 and VI-16 which contained an exceptionally large number of cremated individuals, as well as grave VI-n-2 (Fig. 13) and probably pit VI-g-1, each of which contained only a few burned bones of a single individual (Table 2).

An exceptional way of deposition was used in grave VI-n-1 (Fig. 13). Several human bones burned black were purposely placed around the pit, just at its edge.

A strongly burned roe deer antler was deposited inside the pit and other possible grave goods were found in the filling, but human bones were absent (Fig. 13). This is the only example where offerings were placed inside the grave, whereas the bones of the deceased were outside.

In one case – grave VI-15 – the burned remains of a young male were deposited in a container together with the unburned bones of a dog. The container (basket?) probably had a partition in the middle because the bones of the male and the dog each took up exactly half of it (Figs 14A–B, 9). The unburned bones of another male individual were placed at the bottom of the grave and next to the container (Figs 14–15).⁵⁵ Burned bones were generally mixed anatomically, however large parts of the skull were put at one side of the grave (Figs 14B; 15: 1). Larger bone pieces had probably been placed in the container first and all the small fragments were added

⁵⁵ Bugajska 2015.

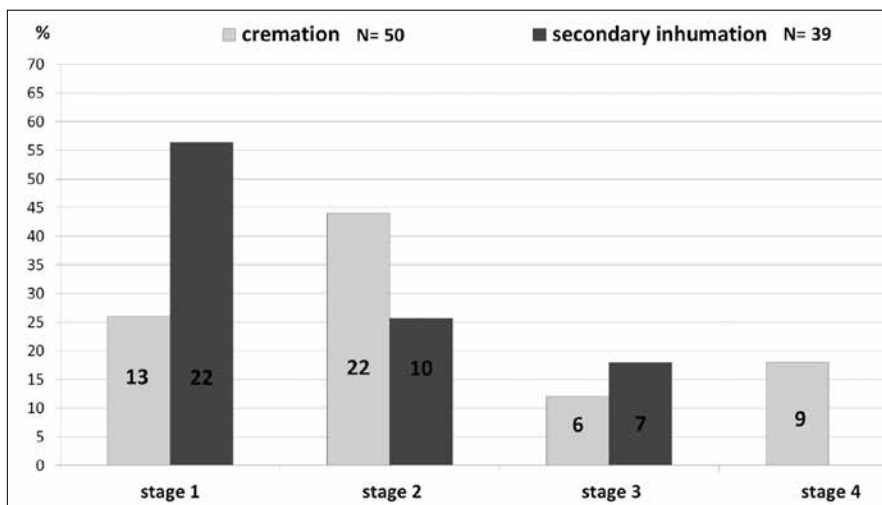


Fig. 9. Dudka cemetery, the completeness of skeletons: stage 1 – single bones; stage 2 – less than half of the skeleton; stage 3 – more than half of the skeleton; stage 4 – complete skeleton (compiled by K. Bugajska).

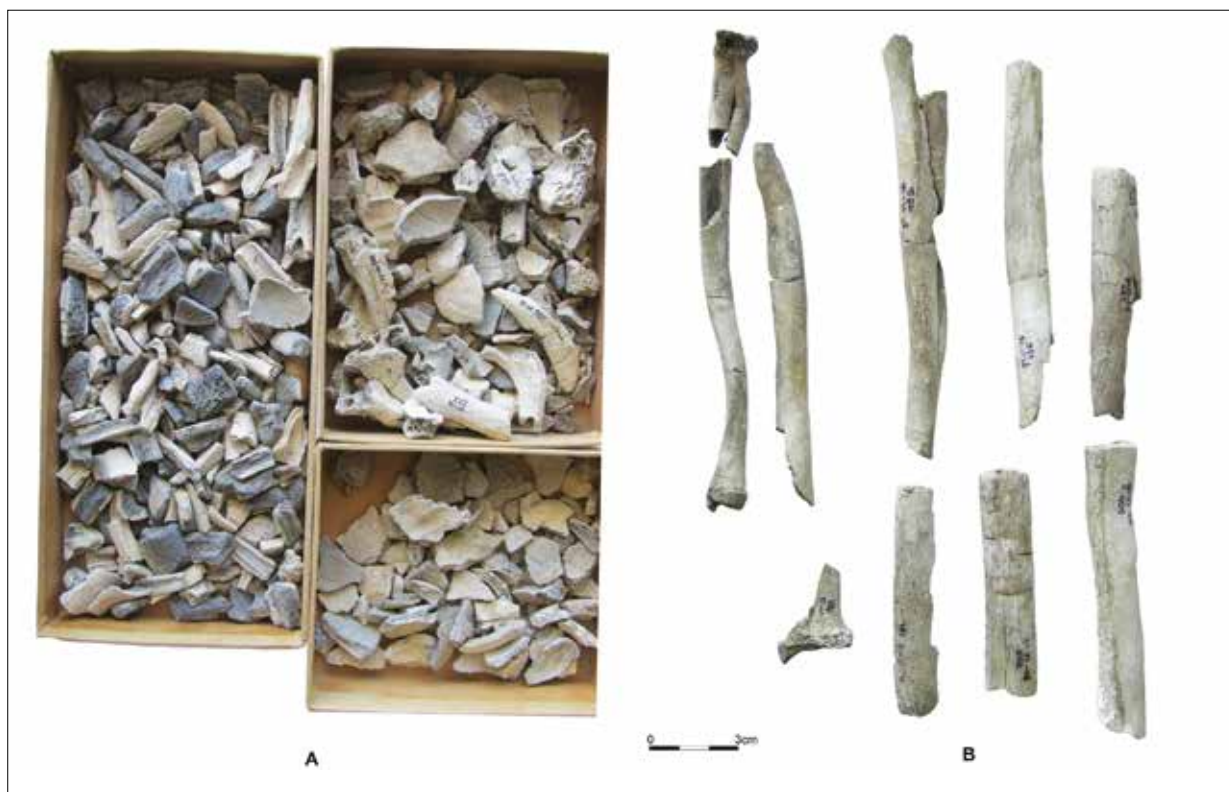


Fig. 10. Dudka cemetery, different manners of burning. A – grave VI-14, bones burned to a chalky white and grey colour (internal surface of long bones), soft floury surface, highly fragmented; B – grave VI-16, bones burned to a yellowish-white colour, highly deformed and shrunken, slightly fragmented (small number of unidentified bones) (photo by K. Bugajska).

afterwards (Fig. 15). Cremated remains were presumably taken from the pyre and placed directly in the container in which they were buried because the skeleton is complete and the bones are preserved in relatively large fragments, especially the skull and some of the long bones

(Fig. 14C–D). Therefore, it seems that the remains were not repacked or stored for a longer time before the final deposition in the grave. They were more likely transported directly from the pyre to the cemetery.

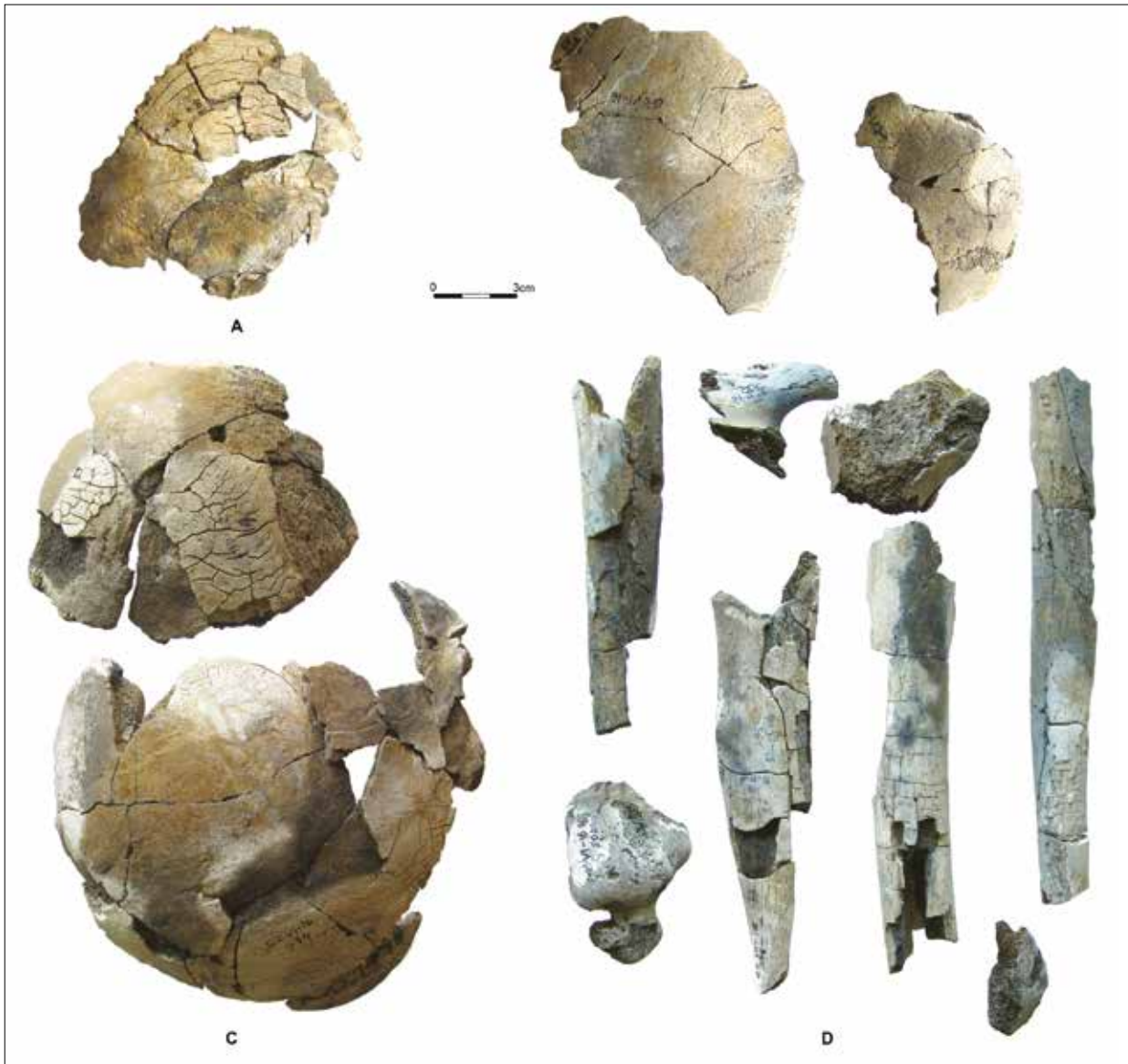


Fig. 11. Dudka cemetery, different manners of burning. Bones burned unevenly to a brown-grey-white (A–C) or blue-grey-white (D) colour. A – grave VI-4, occipital bones of individual VI-4-B; B – grave VI-16, skull fragments, individual VI-16-F; C – grave VI-16, individual VI-16-E; D – grave VI-16, long bones of individual VI-16-E/F (photo by K. Bugajska).

Graves VI-4 and VI-16

Graves VI-4 and VI-16 are very similar regarding the number of cremated individuals, the manner of burning and the way in which bones were deposited.

Grave VI-4 contained the burned bones of at least nine individuals and two unburned bones of an adult and a child (Table 2). The unburned bones cannot belong to any of the cremated individuals and neither do they match any of the individuals identified at the cemetery. These bones may have been accidentally mixed with the cremated remains, but it most probably happened when they were stored at the settlement and not because of any hypothetical disturbances of the grave. The remains of all

the deceased were mixed so they must have been placed in the grave at the same time (Fig. 16).

Grave VI-16 contained the cremated remains of eight individuals and the unburned bones of a female and two children (Table 2). The burned bones of different individuals were mixed with each other and with unburned female remains – individual B (Figs 17–18). This indicates that it was a one-off secondary deposit. The bones of the two children were probably added already at the cemetery since they were put only at the bottom and top of the grave (Fig. 18). At the bottom, there were selected bones of a younger child (individual A), whereas a complete skull of an older child (individual K) was

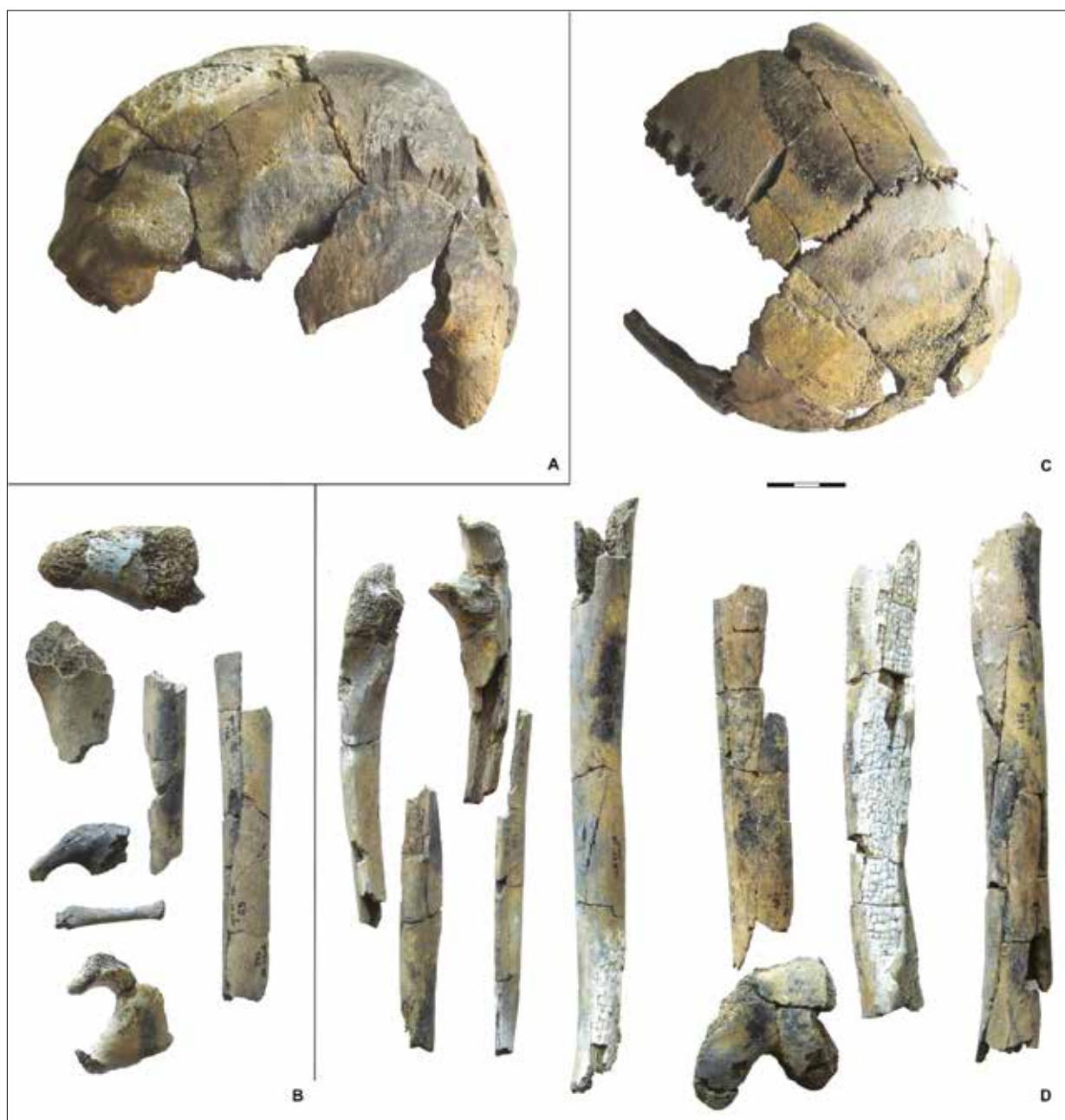


Fig. 12. Dudka cemetery, different manners of burning. Bones slightly and unevenly burned black-brown with partial burning to a blue-white colour. A – grave VI-4, individual A, skull; B – grave VI-16, postcranial bones of individual VI-16-G; C – grave VI-16, skull of individual VI-16-D; D – grave VI-16, bones of extremities of individual VI-16-D (photo by K. Bugajska).

found at the top of the grave, but it was badly damaged by ploughing.⁵⁶

In both graves, the cremated remains indicate different circumstances of burning. Four different manners of burning were distinguished for the remains in grave VI-4 and three for grave VI-16 (Table 2; Figs 10–12). This

suggests that bones were collected from different funeral pyres. There were at least three or four such events for each grave. Moreover, even though the bones of each individual were burned to the same colour, the completeness of skeletons varies (Table 2). This indicates that the deceased were cremated at different times, and the bones

⁵⁶ Bugajska, Gumiński 2016, fig. 25.

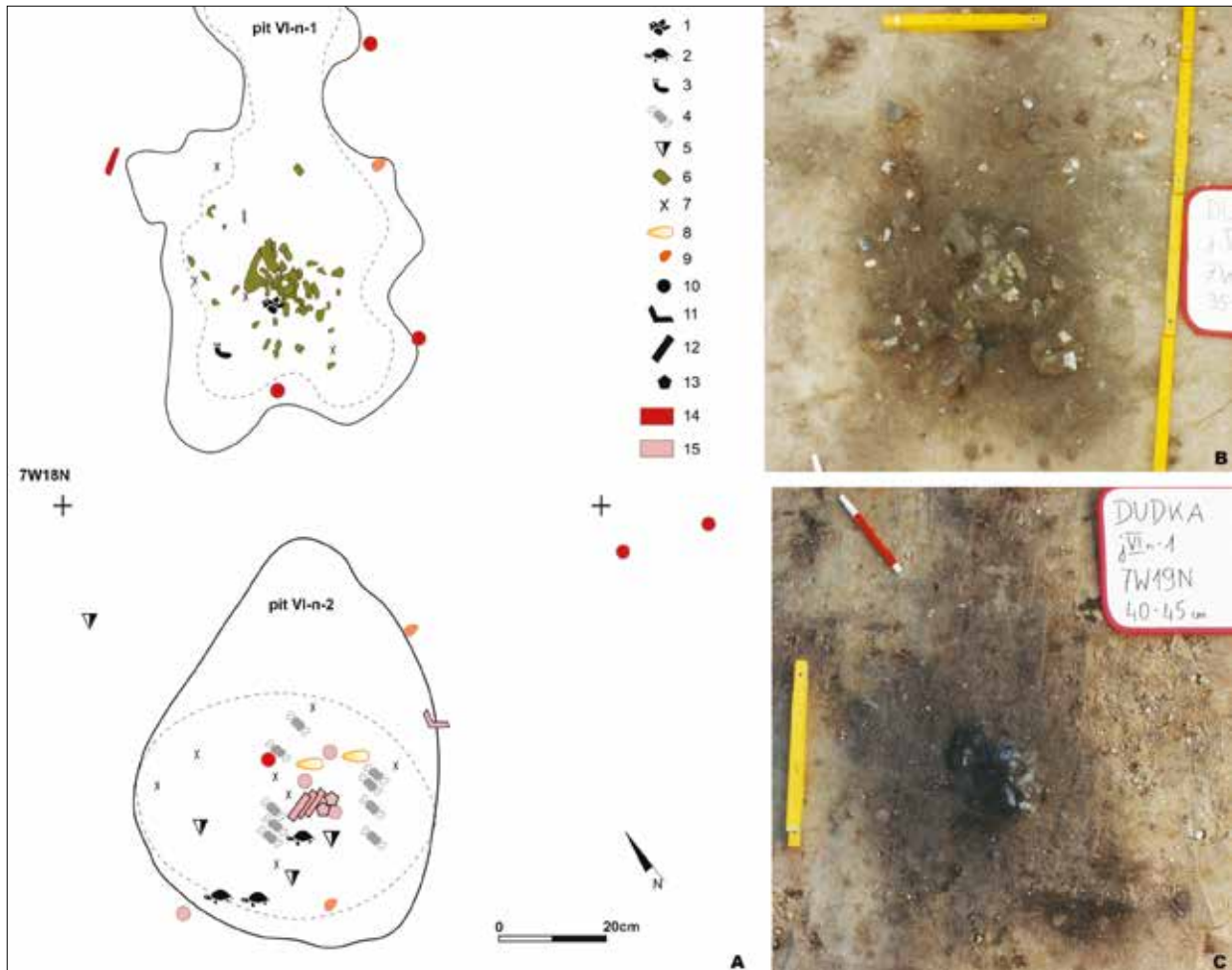


Fig. 13. Dudka, graves VI-n-1 and VI-n-2 with single cremation burials. A – drawing of the pits: 1 – bird bone; 2 – piece of turtle carapace; 3 – hedgehog jaw; 4 – unidentified animal bones; 5 – animal teeth; 6 – burned roe deer antler; 7 – flint; 8 – belemnite; 9 – ochre. Fragments of human bones: 10 – skull; 11 – mandible; 12 – long bones; 13 – vertebra; 14 – bones of individual VI-n-1-A; 15 – bones of individual VI-n-2-A. B – grave VI-n-1, 35–40 cm (photo by W. Gumiński); C – grave VI-n-1, 40–45 cm (compiled by K. Bugajska; photo by W. Gumiński).

were collected, divided and stored for a long time before being deposited in the final grave. It may be assumed that the more incomplete remains of given individuals were probably kept at the settlement much longer and then divided more times. Therefore, it is difficult to distinguish individuals who could have been cremated together on the pyre. This seems to have occurred in the case of three individuals (F, G, H) from grave VI-4 (an adult and two children), whose bones were burned to a chalky white colour and their skeletons remained complete (Table 2).

Both graves contained mixed assemblages of burned and unburned grave goods. A burned belemnite, bone points and a bone dagger appeared in grave VI-16, and burned flints and one belemnite in grave VI-4 (Table 2).⁵⁷ All of these goods were possibly personal

belongings which were collected from the pyre. In both cases, unburned offerings were also found, such as animal teeth and bird bones, which were symbolic and were probably added to the grave during a funeral ceremony.⁵⁸ In grave VI-4 there were two wild boar tusks and a duck bone, and four elk incisors, one roe deer incisor and an owl bone appeared in grave VI-16 (Table 2).

Concentrations with burned human bones

Concentrations of burned human bones were recorded during the exploration of nine graves (Fig. 8). They may have been much more numerous but were

⁵⁷ Gumiński, Bugajska 2016: figs 28, 43.

⁵⁸ Gumiński 2014.



Fig. 14. Dudka, grave VI-15, a cremation burial of a young male (white bones) deposited in a container together with a secondary burial of a dog (brown bones). A – top view of the grave; B – side view, pieces of a burned skull in the foreground; C – completeness of the burned skeleton (individual VI-15-A); D – examples of burned human bones: a – skull; b – vertebrae; c – lower extremities; d – upper extremities (compiled by K. Bugajska; photo by K. Bugajska and W. Gumiński).

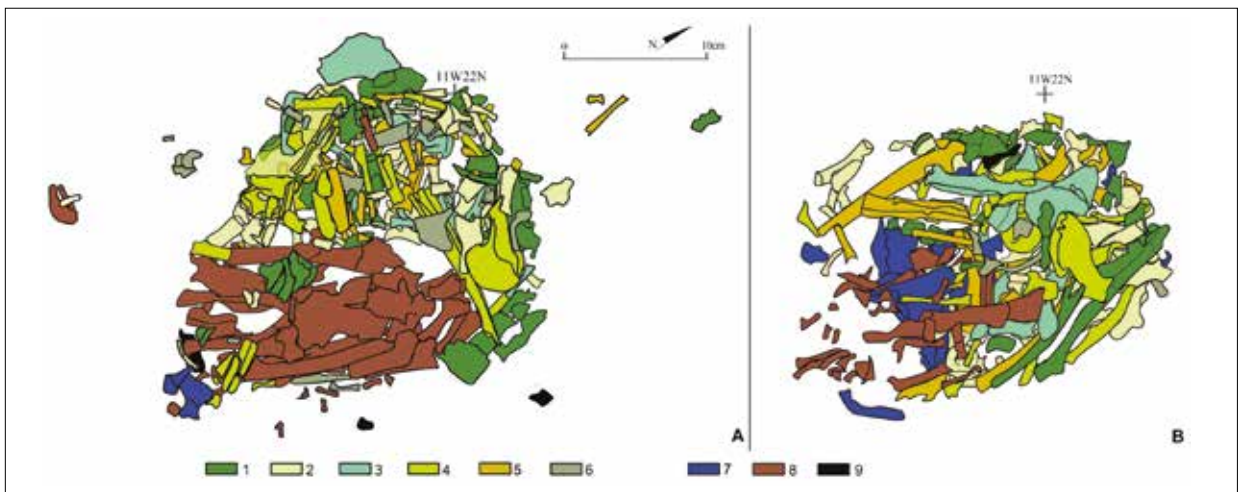


Fig. 15. Dudka, grave VI-15, a cremation burial in a container. A – upper part of the pit, 25–35 cm; B – lower part of the pit, 40–55 cm; 1–6 – burned bones, individual VI-15-A (young male); 1 – skull; 2 – vertebrae and ribs; 3 – pelvis; 4 – lower extremities; 5 – upper extremities; 6 – unidentified burned bones; 7 – unburned bones of individual B (young male); 8 – dog; 9 – grave goods (compiled by K. Bugajska).

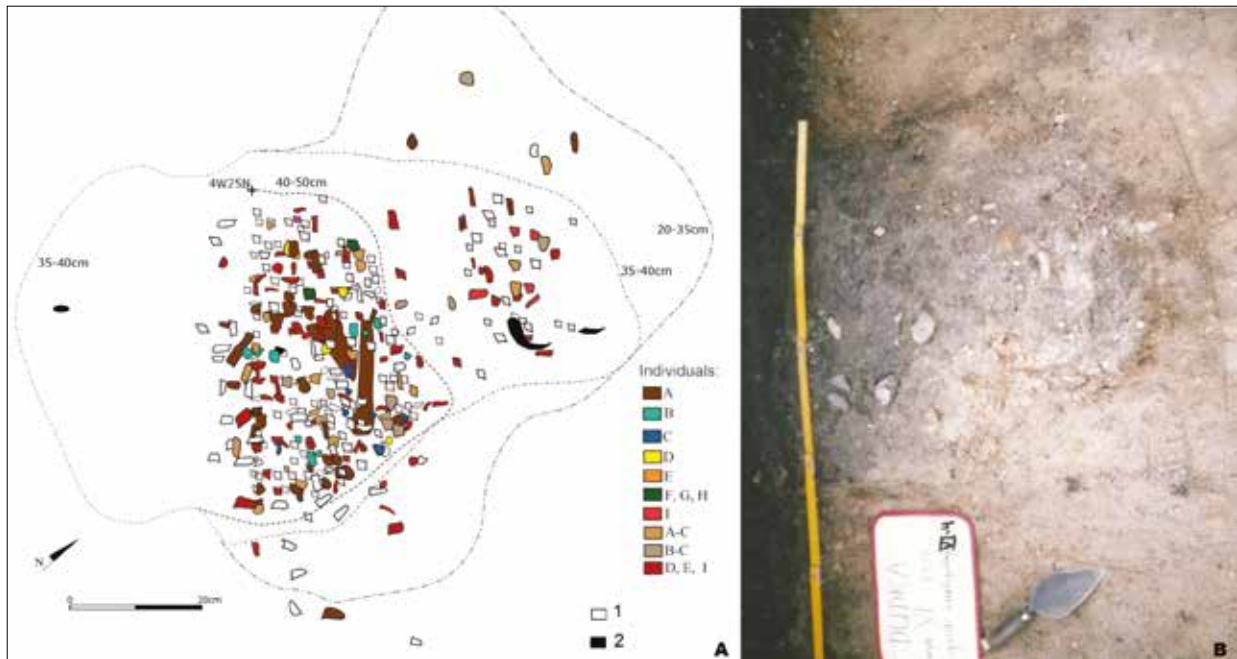


Fig. 16. Dudka, grave VI-4 with 11 individuals, including at least nine after cremation. A – drawing of the grave with marked bones of identified individuals: 1 – burned human bones; 2 – grave goods; B – northern part of the grave (compiled by K. Bugajska; photo by W. Gumiński).

probably destroyed by modern ploughing since many burned bones were scattered at the cemetery and at least seven clusters were distinguished according to their distribution (Fig. 8; Table 2).

Burned remains were placed six times in a concentration above sitting primary burials (Figs 8, 19–20). In most cases, there were also secondary inhumations in the graves, but they were placed in a pit next to the sitting individuals. Only in grave VI-7 the unburned bones of a small child were placed at the top of the grave, exactly like the burned remains (Fig. 20). It is difficult to determine the temporal difference between the interment of the deceased inside the pit and the deposition of the burned bones at its top. Only for grave VI-6 it can be ascertained that the sitting burial was disturbed first, then selected bones were taken out and finally the burned bones were placed at the top of the pit.⁵⁹ Burned remains were rarely added to primary burials laid on the side or on the back,⁶⁰ however, one probable concentration (individual C-8) was located near grave VI-3 (Fig. 8).

Burned bones also appeared inside or around pits, or possibly emptied graves from which whole skeletons

(primary burials) were taken out with only several small bones missing (Fig. 8). This is the case for grave VI-e-4 (individual B) which includes some burned bones in the fill, as well as the cremated remains of two individuals (C-1 and C-3) appearing around the pits VI-i-1 and VI-i-2, one of which is probably an emptied grave. Two other clusters of burned human bones are connected with pits of undetermined function. One appeared near the small pit VI-f-1, and the other between pits VI-p-4 and VI-j-1 (Table 2; Fig. 8).

In five cases, cremated bones were deposited just above secondary inhumations (Figs 8, 21). One of these is grave VI-8 which contained a secondary burial of a dog. The burned human remains were placed just over the grave as 'a small addition' (Fig. 21B). In turn, the burned bones of at least two human individuals and one dog were placed above a secondary burial of a female in grave VI-10 (Fig. 21A). Concentrations of burned bones probably also appeared above grave VI-1 with three secondary burials and at grave VI-e-1 with a secondary deposit of a skull. Another one was placed near grave VI-9, as suggested by the many burned bones of one individual scattered around it, most probably due to modern ploughing.⁶¹

⁵⁹ Bugajska, Gumiński 2016.

⁶⁰ Bones from grave VI-17, previously published as individual VI-17-B (Bugajska, Gumiński 2016), in fact belonged to grave VI-16.

⁶¹ The burned bones from the fill of grave VI-9 previously published as individual VI-9-C (Bugajska, Gumiński 2016; Gumiński, Bugajska 2016) were added to individual C-7.



Fig. 17. Dudka, grave VI-16 with 11 individuals, including at least eight after cremation. A – upper part of the pit destroyed by ploughing; B – middle part of the pit, 35 cm; C – lower part of the pit with unburned bones of a female (femur, humerus) mixed with burned bones (photo by W. Gumiński).

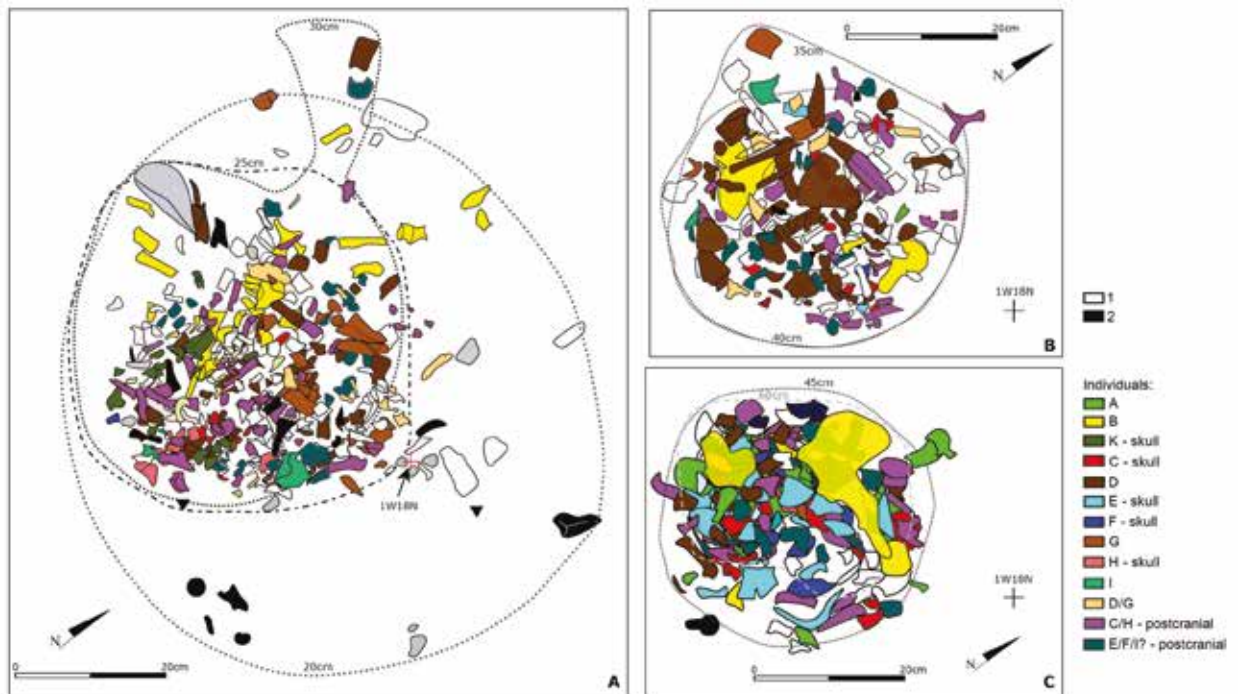


Fig. 18. Dudka, grave VI-16 with marked bones of identified individuals. A – upper part of the pit, 20–30 cm; B – middle part of the pit, 35–40 cm; C – lower part of the pit, 45–60 cm; 1 – unidentified burned human bones; 2 – grave goods (compiled by K. Bugajska).



Fig. 19. Dudka, graves with concentrations of burned human remains at the top. A – grave VI-13, the burned bones of at least two individuals (marked with a red line) were placed just behind the skull of a sitting individual and next to a secondary deposit of the skull (seen from the bottom part); B – grave VI-11, three concentrations of burned bones (marked with a red line) placed around the skull of a sitting child (photo by W. Gumiński).

In most cases, a single concentration contained the bones of one or two individuals. If there were two deceased, usually an adult and a child, their bones were mixed together (Table 2). Only in grave VI-11⁶² there were three separate concentrations placed around the skull of a sitting child and each consisted of the bones of a single individual (Fig. 19B).

The bones from concentrations were usually burned evenly and strongly to a white colour (16 individuals) and were often highly fragmented (8 individuals). This manner of burning is more frequent in concentrations over graves than in cases where bones were placed inside a pit (Fig. 22).

Usually the amount of burned remains in a concentration was very small (Table 2). It was just a handful of bones, apparently taken at random from a sack with ‘ancestors’ remains’. It is worth noting that concentrations of scarce burned bones are analogous to deposits of single unburned bones which were a common practice at Dudka as well. Such small ‘additions’ probably had an important meaning because they may have belonged to significant dead whose remains were divided and stored for a longer time than others’.

Grave goods rarely appeared together with burned bones placed in concentrations (Table 2) and there were only single burned flints, animal bones or belemnites, which were most likely personal belongings.

Conclusion and discussion

In all of the investigated regions, the oldest cremation burials are dated to the Early Mesolithic and it may be concluded that the burning of the dead was a custom which appeared in all of these areas in parallel and independently. Moreover, there are some specific features of cremation for each region or even for particular cemeteries which would also indicate an aboriginal genesis of this funeral rite.

On the Western European Plain, burned bones were deposited in large pits together with grave goods, whereas in southern Scandinavia bones were usually placed in small rounded pits and grave goods appeared in less than half of the graves. By contrast, the deposition of burned bones directly on the ground was probably a typical custom in north-eastern Poland. Burning of the body

⁶² The burned bones published as individual VI-12B (Bugajska, Gumiński 2016; Gumiński, Bugajska 2016) in fact come from grave VI-11.

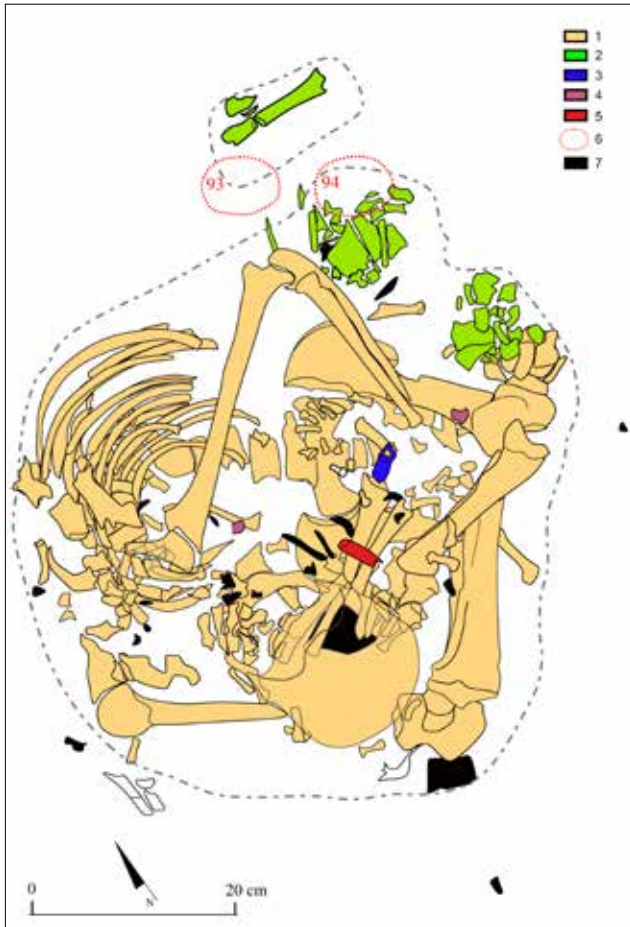


Fig. 20. Dudka, grave VI-7 with a sitting primary burial of an elderly male (individual VI-7-A). Concentrations of burned bones (nos. 93–94) and a secondary burial of a small child (individual VI-7-B) deposited at the top of the grave: 1 – individual VI-7-A; 2 – bones of a child ca. 2 years old (individual VI-7-B); 3 – unburned ulna of individual C, a partial secondary burial; 4 – burned human bones in the fill of the pit; 5 – singed bone of individual VI-7-E; 6 – concentrations with burned bones (at least individual D); 7 – grave goods (compiled by K. Bugajska).



Fig. 21. Dudka, graves with concentrations of burned bones (marked with a red line) above or next to secondary inhumation burials. A – grave VI-10, numerous small concentrations of burned bones of two human individuals and one dog spread over a secondary burial of a female deposited in a container; B – grave VI-8 with a secondary burial of a dog accompanied by a small concentration of burned human bones (photo by W. Gumiński).

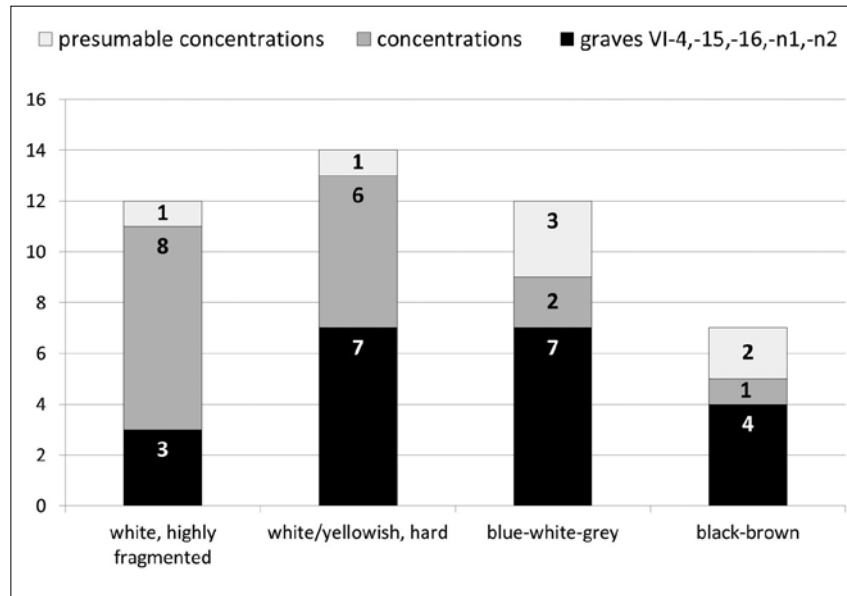


Fig. 22. Dudka cemetery, the manner of burning. Concentrations of burned bones versus burials placed inside grave pits (compiled by K. Bugajska).

within the grave (primary cremation) is a unique feature of the cemetery at Mszano. In turn, the deposition of burned bones together with primary or secondary inhumations was typical for the Dudka cemetery, whereas it was extremely rare in other regions and cemeteries, as it is known only from Motala and Abri des Autours.

In each region, or even at each cemetery, the relation between cremation and inhumation is different. In one case, cremation may have been the dominant burial custom, as was probably true for the Middle Mesolithic of the Netherlands. In other cases, cremation was practised by and for a part of the local society, as in the case of the Middle Mesolithic of the Seine Valley and at several other cemeteries: Nivå, Vedbæk Gøngehusvej and Dudka. Finally, there are cemeteries such as Skateholm I and II where only single individuals were cremated. This suggests that cremation was presumably performed there only in special circumstances or for exceptional members of the local community. Nevertheless, in each case there were probably specified rules for cremation practices. Consequently, its meaning could be different for each region or even cemetery.

It is worth noting that cremation burials across the European Plain belong mostly to the Middle Mesolithic, and their prevalence was locally high at the time.

Cremation was also comparably frequent in the Early Mesolithic, taking into account the generally small number of graves dated to that period. In contrast, in the Late Mesolithic cremation seems to have played a marginal role in Scandinavia as well as in the Western European Plain. At that time, funerary customs became more unified and primary burials were dominant. Only in north-eastern Poland, including the Dudka cemetery, cremation was still a common practice in the Late Mesolithic and para-Neolithic.

It should be emphasised that at the Dudka cemetery, cremation burials were comparably frequent to secondary inhumations, and the remains from funeral pyres were treated similarly to bones taken from temporary burial places or from disturbed primary burials. Therefore, cremation was probably an alternative for inhumation as a kind of multi-step funeral rite. Instead of a temporary burial for the time of decay, bones were cleaned from soft tissue with fire. In both cases, the remains were later divided, selected, kept in the settlements and finally deposited in destination graves. Taking into account the fact that in all regions the cremated skeletons were often incomplete, the perception of cremation as a multi-step rite may have been more widespread across the European Plain in the Mesolithic since the early stage of this period.

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THE NEOLITHIC VS. THE MESOLITHIC IN SOUTHERN POLAND: IS EVERYTHING KNOWN YET?

ABSTRACT

According to a common belief, southern Poland was a typical area of Early Neolithic settlements which was rarely exploited and even ignored by Mesolithic communities. However, the prehistoric reality was more complex. Indeed, the zones largely omitted by the hunter-gatherers were fertile loess uplands and foothills settled by the first Neolithic farmers (Linear Band Pottery culture) in the third quarter of the 6th millennium BC. However, such ecological zones are by no means the only or even predominant zones within the territory in question. Areas with other ecological conditions, mainly those close to the Polish Lowland, yielded surprisingly numerous remains of Mesolithic settlements, including late Mesolithic ones. Radiocarbon data makes it clear that the Late Mesolithic communities coexisted with their Neolithic counterparts. However, the temporal dimension of this coexistence remains a debatable and

controversial issue. Nevertheless, it is highly probable that the late hunter-gatherers would use 'their own' pottery also in southern Poland. Similarly to many other European regions, the anthropological and historical interpretations that describe and explain the interactions between early farmers and late hunter-gatherers in southern Poland (as well as archaeologically discernible transformations within the latter group) are difficult to construct. It is even more difficult to assess the role played by hunter-gatherers in the neolithisation of this territory. This paper presents and analyses the relevant chronological, chorological, settlement, and typological data. As a result, the hypothesis that the hunter-gatherer communities were but 'passive' witnesses to the first neolithisation and functioned independently at least throughout the entire Neolithic period was considered most probable.

Keywords: southern Poland, Late Mesolithic, para-Neolithic, Neolithic, cultural interactions

Introduction

According to a common belief, southern Poland (Fig. 1) was an area of classical early Neolithic settlements which was rarely exploited and even ignored by Mesolithic communities. Therefore, if the role of the Late Mesolithic is considered in the debate on neolithisation at all, it usually

concerns primarily the lowland zone. However, as will be demonstrated, the Mesolithic in southern Poland is by no means represented poorly. Therefore, the Mesolithic factor should be considered in the discourse on neolithisation and Neolithic development in both the lowland (northern) and the upland (southern) territories, as well as from a general perspective.¹

¹ Kozłowski, Nowak 2019.



Fig. 1. Location of the investigated territory in the central part of Europe and basic geographical and historical regions of southern Poland against hypsometry and the main rivers.

The southern part of Poland is characterized by much greater diversity in the natural lie of the land² than the central and northern parts of the country, and uplands, submontane, and mountainous areas constitute a significant proportion of it. At the same time, there are surprisingly large areas with a lowland landscape. These are mainly fragments of the Central Polish Lowland cutting in from the north, as well as a range of submontane basins. Smaller areas of lowland character (basins, river valleys) are also located in zones where the dominant lie of the land is upland. Finally, the specific landscape of carbonate, gypsum, siliceous, and aluminosiliceous uplands is a separate type of upland natural environment according to A. Richling.³ It is found in larger patches in the Kraków-Częstochowa Upland and in some parts of the other upland regions neighbouring the Kraków-Częstochowa Upland from the north and east. The less compact coverings, separated mainly by loess uplands, are located in Volhynia Polesie, Roztocze, the Lublin Upland, the south-western part of the Kielce Upland, and in the western part of the Silesian Upland.

The beginnings of the Neolithic in southern Poland

As in other parts of Central Europe, the origins of the Neolithic in southern Poland are associated with the appearance of communities whose archaeological reflection is the Linear Band Pottery culture (LBK). At the moment, the exact number of LBK sites in this area would be difficult to calculate, but it would certainly exceed one thousand.⁴ Similarly to other parts of its Central European range, this culture is distributed in an island-like manner. Such 'islands' of 'Linear' settlement are located in areas covered by the most fertile soils, developed on loess substrate or black earth soils, as is the case with Lower Silesia. Nevertheless, single LBK sites are known in other ecological zones, however it is worth noting that even these cases are located in the immediate vicinity of loess areas.⁵ The remains of material culture recorded at such sites generally do not show any differences from sites situated in 'ordinary' fertile areas; usually they are only poorer quantitatively as such sites are relatively small (Fig. 2).

² Richling, Dąbrowski 1995; Wojciechowski *et al.* 2004; Chmielewski *et al.* 2015.

³ Richling 1992.

⁴ For instance, Kulczycka-Leciejewiczowa 1993; Furmanek 2004; 2010; Czekał-Zastawny 2008; 2009; 2014; Pelisiak 2018.

⁵ For instance, Nowak, Rodak 2015; Szeliga *et al.* 2019.

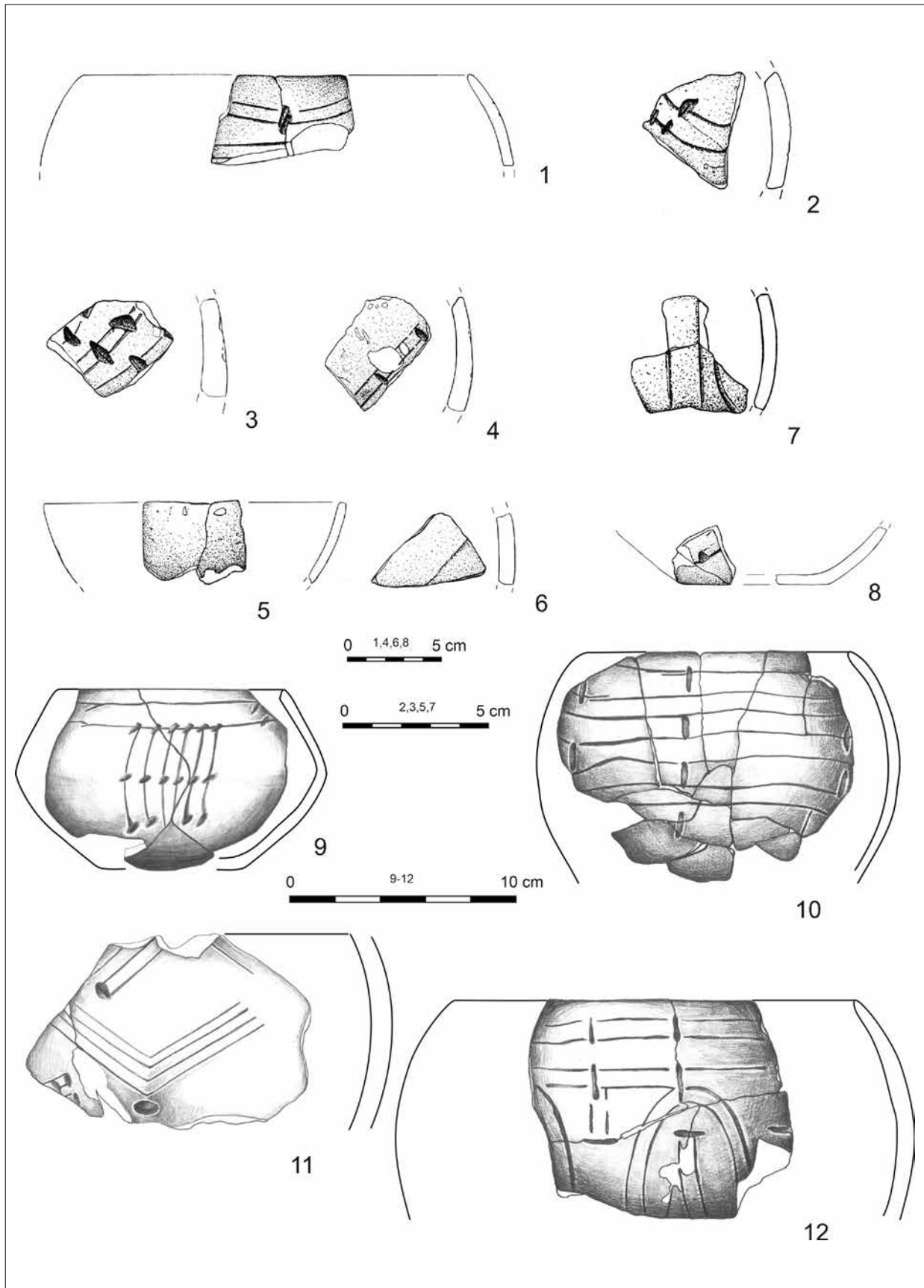


Fig. 2. Pottery of the LBK from southern Poland; 1–8 – Stanisławice 9 ('alluvial' zone), 9–12 – Miechów 3 ('loess' zone); drawings by A. Kluzik and S. Krishnevskaya, respectively.

Based on interpretations using, among others, Bayesian modelling of available ^{14}C datings⁶ and ceramic typological data, we believe that the beginnings of the LBK should be dated a little later than previously assumed⁷ (Fig. 3). Namely, the first signs of the LBK are estimated at around 5400 BC at the earliest, and located in western Małopolska.⁸ From this region, the culture spread along the upper Vistula river, more or less in the second quarter of the 54th century BC, to finally reach the upper Bug river basin around 5350 BC. Considering the recent publication of the Brunn 2 site located near Vienna,⁹ which is crucial for the chronology of the origins of the LBK, it is even possible that the above dates could be moved forward by about 50 years.

The LBK in Lower Silesia would have appeared no sooner than at the turn of the 54th and 53rd centuries BC,¹⁰ which suggests that this must have happened earlier in Upper Silesia. Also, probably not earlier than ca. 5300 BC, another settlement enclave of this culture emerged which was located along the northern border of the eastern part of the Polish Carpathians,¹¹ although this view is not necessarily shared by all researchers.¹²

So far, we have only one identification of fossil DNA for the LBK in southern Poland, from the site at Samborzec. Moreover, it is an mtDNA and not whole-genome identification.¹³ Significantly, however, a haplogroup that is very typical and even specific for the LBK, N1a, is represented here.

Nevertheless, genetic data from nearby Hungary, Austria, and Germany,¹⁴ including whole-genome identifications, indicate clear differences between the LBK and Mesolithic populations. The aforementioned Samborzec mtDNA identification is also consistent with this conclusion. It is therefore safe to suppose that this state of affairs could also be extrapolated to the LBK in areas to the north of the Carpathians and the Sudety Mountains. Consequently, the genesis of the LBK in southern Poland should be regarded in terms of population movements, similarly to other regions of Central Europe inhabited by representatives of this culture.

On the other hand, it is worth emphasizing the very modest but quite ubiquitous proportion of hunter-gatherer ancestry that has been demonstrated in the quoted publications. This phenomenon has also been

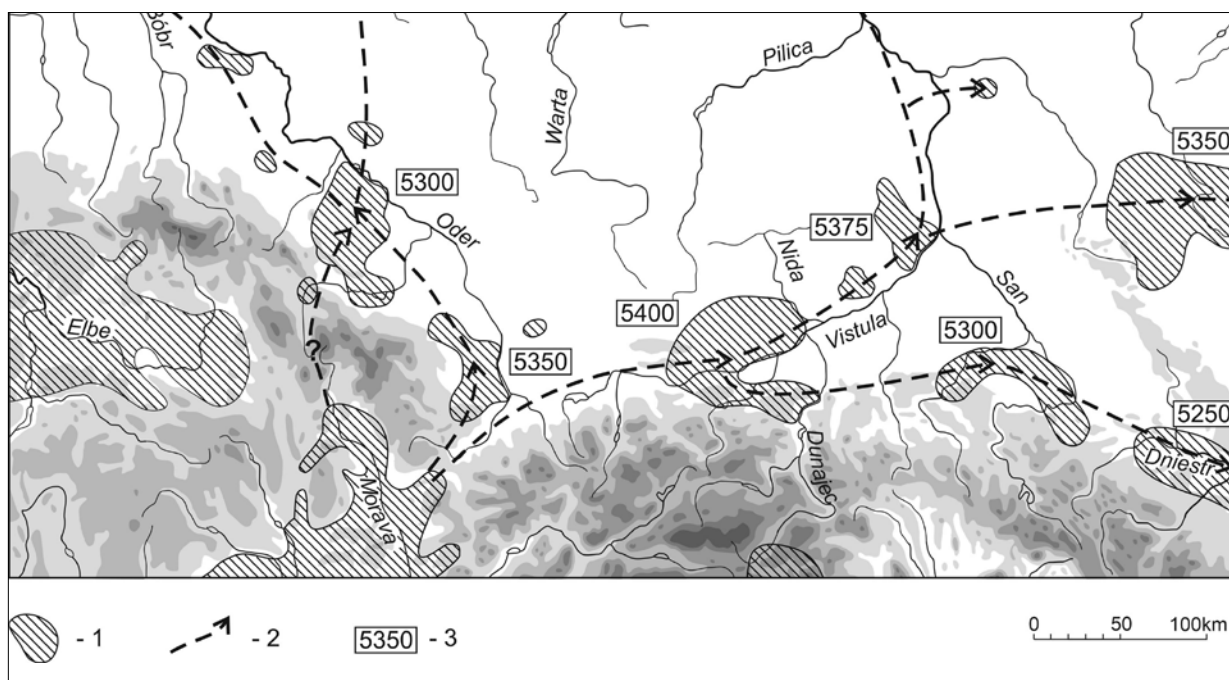


Fig. 3. Main LBK 'enclaves' during its maximal territorial extent ca. 5100–4900 BC (1), the main 'routes' of the LBK spread (2), and averaged dating of the earliest appearance of the LBK in southern Poland (3) (after Kozłowski, Nowak 2019, fig. 4).

⁶ Kozłowski, Nowak 2019.

⁷ For instance, Czekał-Zastawny 2008; 2014.

⁸ Czekał-Zastawny *et al.* 2020.

⁹ Stadler, Kotova 2019.

¹⁰ Grześkowiak *et al.* 2016; Furmanek *et al.* 2019.

¹¹ For instance, Dębiec 2014; 2015.

¹² Kadrow 2020.

¹³ Chyleński *et al.* 2017.

¹⁴ Brandt *et al.* 2014; Haak *et al.* 2015; Hofmanová *et al.* 2016; Lipson *et al.* 2017; Mathieson *et al.* 2018.

confirmed by a very recent publication of three skulls from the already-mentioned Brunn am Gebirge 2 site.¹⁵ At least one skull has a very distinct Mesolithic component. Interestingly enough, the strontium values for this individual demonstrate a non-local origin. Hence, some contacts between incoming early farmers and local hunter-gatherers must have taken place, even if these were only casual sexual contacts. Consequently, a similar possibility can also be applied to the LBK spread in southern Poland.

In the 5th millennium BC, Neolithic groups of post-Linear character still concentrated within the same 'fertile' settlement enclaves, at least in principle. Thus, until the beginning of the 4th millennium BC, at least 60 to 70% of the discussed area remained beyond the boundaries of dense Neolithic settlement.¹⁶

The Late Mesolithic in southern Poland

In fact, the aforementioned "60 to 70%" of the area of southern Poland was not necessarily unpopulated and unexploited by humans. Obviously, the Late Mesolithic hunter-gatherer communities are the most plausible inhabitants.

As already indicated, the number of Mesolithic sites in southern Poland is quite significant (Fig. 4). Over one thousand and six hundred sites belonging to this period are known from the area. Among these, over five hundred can be categorised as Late Mesolithic. Their largest clusters can be identified in the eastern part of the Nida Basin,¹⁷ Lublin Upland, Roztocze, western Polesie, southern Podlasie Lowland, Sandomierz Basin,¹⁸ Brama Krakowska,¹⁹ the upper Warta River basin,²⁰ between the Vistula and Pilica rivers,²¹ and in the Kraków-Częstochowa Upland.²² On the whole, it seems that the density of Late Mesolithic settlement in Lower Silesia was lower.²³ Data on Late Mesolithic materials seem to be less well-recognized in the case of the Silesian Upland and the eastern part of the Silesian Lowland (few Mesolithic sites are known especially from the latter area, contrasting with the relatively numerous para-Neolithic sites).²⁴

Of the Late Mesolithic sites, about 40% are campsites, while the remaining ones are only single isolated finds. The only sepulchral finding from southern Poland, from Site 2 in Brzegi on the upper Nida river is worthy of a mention,²⁵ and the fact that single artefacts from that period were found only in two caves (Duża Cave in Mączne Skały²⁶ and Dr Majer's Cave).²⁷ The Mesolithic materials from another seven caves are either dated to the Early Mesolithic or their chronology is not certain.

Of course, the term 'Late Mesolithic' is not unambiguous, for various reasons. It is most often used in both the chronological and typological sense. In the authors' opinion, given the place and time that we are interested in, it should be understood as an expression of a number of changes, starting from the turn of the 7th and 6th millennia BC, that occurred in the material culture of hunter-gatherer groups. The association of the Late Mesolithic with the Atlantic period (in the sense of the chronozone²⁸ or Blytt-Sernander's climatic period), which has often been expressed in literature, is erroneous, even for a small area such as southern Poland. One should keep in mind the asynchronicity of changes in different areas. Another issue is the possible link between climate, and environmental and cultural changes; these should be followed by high-precision dating, on a local geographical scale.²⁹

The first of the noticeable changes is the spread of the Sauveterrian typological forms in the inventories of the Komornica culture. The 'Sauveterrisation' of the Mesolithic industries of Europe began as early as in the first half of the 7th millennium BC, and by its end reached the cultures of the so-called Northern Technocomplex.³⁰ According to the current state of knowledge, it seems most likely that this trend "found its way" into the Komornica culture through the Maglemose circle.³¹ Growing Maglemosian influences led to the evolution of the Komornica culture which continued in the Atlantic period. In addition to the microliths known from the earlier stages of this culture, narrow scalene triangles appear (Fig. 5: 4–25), as well as less numerous triangles with a re-

¹⁵ Nikitin *et al.* 2019.

¹⁶ Kulczycka-Leciejewiczowa 1993; Kaczanowska 2006; Nowak 2009; Zakościelna 2010; Czarniak 2012; Pelisiak 2018; Furmanek *et al.* 2019.

¹⁷ Kozłowski 1969.

¹⁸ Libera *et al.* 1992; Libera 1995; 1998; Wawrzczak 2006; Mikulski 2012.

¹⁹ Sachse-Kozłowska 1969; Dagnan-Ginter, Drobniewicz 1974; Chochorowska 2007; Klimek, Peschel 2009; Klimek, Stefański 2012; Zakrzeńska 2016.

²⁰ Ginter 1969; Niesiołowska-Śreniowska, Cyrek 1975; Cyrek 1980.

²¹ Ciepiewska 2006.

²² Zając 2001; 2006; Zakrzeńska, Zając 2018.

²³ Bagniewski 1979; 1982; 1987; Kendelewicz 2002; Masojć 2004; 2007; 2014.

²⁴ Łęczycki 2014.

²⁵ Przeździecki 2015.

²⁶ Dagnan-Ginter *et al.* 1992.

²⁷ Zakrzeńska, Zając 2018.

²⁸ Mangerud *et al.* 1974.

²⁹ Birks *et al.* 2015.

³⁰ Kozłowski 1976; 2009.

³¹ Bagniewski 1973; Ginter 1973; Kozłowski 1989; 2009; Kobusiewicz 1999; Galiński 2002; Kendelewicz 2002; Masojć 2016.

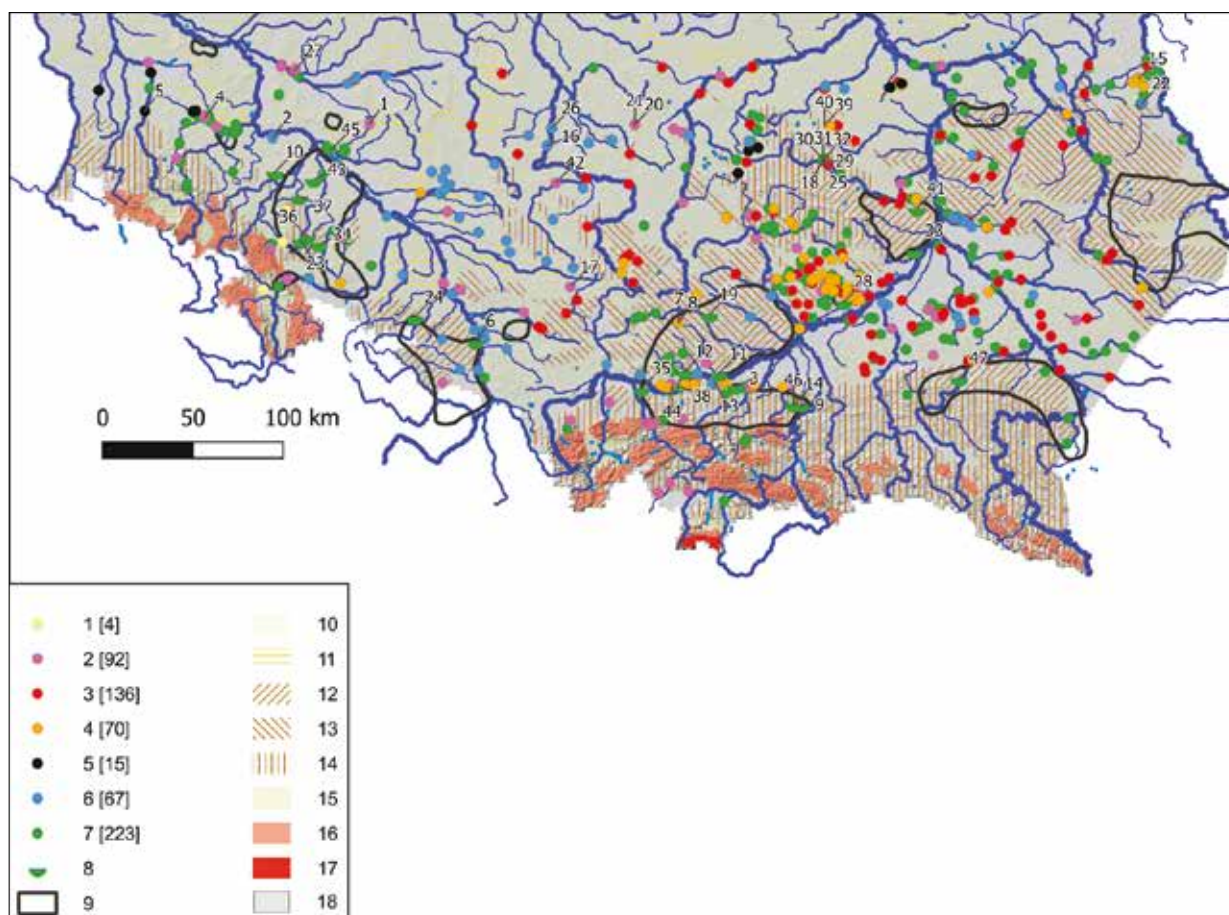


Fig. 4. Late Mesolithic, Early Neolithic, and para-Neolithic in southern Poland against the background of the basic types of natural landscapes.

Archaeological phenomena: 1 – Beuron, 2 – Komornica, post-Maglemose, 3 – Janisławice, 4 – Komornica, post-Maglemose, Janisławice, 5 – Bóbr group, Kokry industry, Janisławice of the Baraki Stare 13 type, 6 – para-Neolithic, 7 – Late Mesolithic in general (1–7 – number in parentheses [] represents the number of sites), 8 – LBK sites with ^{14}C dates, 9 – range of the LBK during its maximal territorial development.

Types of Polish natural landscapes (according to Richling, Dąbrowski 1995, modified): 10 – lowland periglacial landscapes, 11 – lowland glaciofluvial landscapes, 12 – upland loess landscapes – aeolian, 13 – upland carbonate and gypsum landscapes – erosive, 14 – upland siliceous and aluminosiliceous landscapes – erosive, 15 – denudation and basins in the upland and mountainous landscapes, 16 – medium mountainous landscapes – erosive, 17 – high mountainous landscapes, 18 – valley landscapes.

Late Mesolithic and LBK sites with ^{14}C dates (number on the map): 1 – Bartków 7 (Bagniewski 1976), 2 – Brodno E (Bagniewski 1991), 3 – Brzezcie 17 (Czekaj-Zastawny 2008; 2014; Mueller-Bieniek *et al.* 2019), 4 – Bukówna 5 (Masojć 2003), 5 – Dąbrowa-Krępnica 5 (Bagniewski 1982), 6 – Dzielnica (Furmanek 2010), 7 – Głanów 2 (Pazdur *et al.* 2003), 8 – Głanów 3 (Pazdur *et al.* 2003), 9 – Gwoździec 2 (Mueller-Bieniek *et al.* 2019; Czekaj-Zastawny *et al.* 2020), 10 – Kostomłoty 1 (Furmanek 2010; Furmanek *et al.* 2014), 11 – Kraków-Nowa Huta-Pleszów 17, 18, 20 (Godłowska *et al.* 1987), 12 – Kraków-Olszanica 4 (Milisauskas 1986), 13 – Kraków-Bieżanów 34 (Klimek, Stefański 2012), 14 – Łoniowa 18 (Valde-Nowak 2009), 15 – Luta I (Więckowska, Chmielewska 2007), 16 – Łykowe 1 (Kanwiszer, Trzeciak 1984; 1986; Cyrek 1990), 17 – Miasteczko Śląskie 2 (Foltyn *et al.* 2018), 18 – Michałów-Piaska I/1996 (Schild *et al.* 2011), 19 – Miechów 3 (unpublished), 20 – Mokracz 1 (Niesiołowska-Śreniowska 1990; Kanwiszer, Trzeciak 1991), 21 – Mokracz 1 (Niesiołowska-Śreniowska 1990; Kanwiszer, Trzeciak 1991), 22 – Nieborowa I (Boroń 2014), 23 – Niemcza (Kulczycka-Leciejewiczowa 1993), 24 – Nowy Browiniec (Kulczycka-Leciejewiczowa 1997), 25 – Nowy Młyn III/1989 (Schild *et al.* 2011), 26 – Osjaków 3 (Kanwiszer, Trzeciak 1991), 27 – Pobiel 10 (Bagniewski 1990), 28 – Podlesie 6 (Szeliga *et al.* 2019), 29 – Rydno I/1976 (Schild *et al.* 2011), 30 – Rydno I/1978-79 (Schild *et al.* 2011), 31 – Rydno I/1981 (Schild *et al.* 2011), 32 – Rydno XI/1960 (Schild *et al.* 2011), 33 – Samborzec (Kulczycka-Leciejewiczowa 2008), 34 – Skoroszewice (Kulczycka-Leciejewiczowa 1997), 35 – Spytkowice 26 (unpublished), 36 – Strachów 2 (Kulczycka-Leciejewiczowa 1997), 37 – Stary Zamek (Kulczycka-Leciejewiczowa 1993), 38 – Ściejowice 1 (Chochorowska 2001), 39 – Tomaszów I (Schild *et al.* 1985), 40 – Tomaszów II (Schild *et al.* 1985), 41 – Tominy 6 (Szeliga 2017), 42 – Troniny 5 (Cyrek 1996), 43 – Tyniec Mały (Kulczycka-Leciejewiczowa 1993), 44 – Wołowice (Bańdo *et al.* 1993), 45 – Wrocław-Polanowice 8 (Masojć 2007), 46 – Żerków 1 (Valde-Nowak 2009), 47 – Zwiężczyca 3 (Dębiec, Dzbyński 2007).

touch of the third side and narrow backed pieces (Fig. 5: 29–33) and Sauveterian points. In addition, there are forms of truncations (Fig. 5: 26–28) known from the Maglemose assemblages. The changes also affected the production technology of bladelet blanks. Slender and very slender microlithic blades started to appear which were detached from single-platform, mostly handle or coniform cores of triangular flaking surfaces (Fig. 5: 1–3). The late Komornica inventories containing these elements are referred to in literature as Pieńki or post-Maglemose³² or as containing Style C elements.³³ More than 90 late Komornica / post-Maglemose sites have been found in the upland belt, in the lowland areas neighbouring to the north, as well as in the Sandomierz Basin.

Further cultural stimuli were reaching southern Poland and changing the image of the local Mesolithic probably as late as during the evolution of the Komornica culture towards a unit with post-Maglemose features. This time the stimuli came from the south and were related to the process of ‘Castelnovisation’ of the Late Mesolithic (and – to some extent – Early Neolithic?) industries of Europe. This is a supra-regional horizon³⁴ associated with the idea of producing relatively large (for Mesolithic standards) and regular blades, which were obtained from standard, single-platform cores (plank-shaped or handle ones that took the form of a cone or a bullet in the final phase of exploitation). These cores were exploited using either the pressure or punch technique. Technological change was accompanied by typological changes – trapezes and rhomboids, as well as other tools made of regular blade blanks (points, end-scrapers, truncations, retouched blades) appeared in the Late Mesolithic and Early Neolithic inventories. The so-called Trend K (or Style D) spread in south-western Europe since the mid-7th millennium BC, covering Western Europe by the mid-6th millennium BC.³⁵ Probably a little earlier, in the second half of the 8th millennium BC, this horizon appeared in the Black Sea zone.³⁶ It reached the Mesolithic communities living in southern Poland by about 6,000 BC.³⁷ The idea of large, straight blades with almost perfectly parallel side edges is visible in the flint industry of the Janisławice culture which appeared at that time in the eastern part of the discussed area. Although the most obvious route through which the idea of ‘Castelnovisation’ penetrated into the terri-

tory of Poland leads through the territory of present-day Ukraine and Moldova, it should also be remembered that the south-western road was also used to some extent. This is indicated by the late Beuronian assemblages with trapezes, discovered in the Sudety Mountains and in the Sudety Foreland.³⁸ Moreover, later influences from the north, from the ‘Castelnovised’ Late Mesolithic groups of the Baltic zone until the end of the Atlantic Period (?)³⁹ cannot be excluded either. ‘Castelnovisation’ also encompasses the late Komornica or post-Maglemose groups. Their inventories included larger and more regular blades (Fig. 6: 1–2), trapezes (Fig. 6: 10–24), as well as wider types of truncations (Fig. 6: 3–7) and triangles (Fig. 6: 8–9). A particularly intense occurrence of these elements can be observed in the central part of southern Poland (the valley of the upper Vistula near Kraków, the Kraków-Częstochowa Upland, and the Nida Basin), where post-Maglemose groups must have been influenced by the Janisławice culture.⁴⁰ A fully Castelnovised industry, derived from the Komornica tradition, can be found in the 5th millennium BC in the so-called Bóbr group in Lower Silesia.⁴¹

The third change in the material culture of Mesolithic communities in southern Poland involves the adoption of pottery without altering the entirely hunting and gathering lifestyle. Nearly seventy sites are known from the area in question in which ceramics with para-Neolithic attributes (see below) were discovered (Fig. 4). Their distribution generally coincides with the zones of occurrence of post-Maglemose and Janisławice sites, except for the groupings in the inter-river region of Mała Panew and Stobrawa, on the Stobrawa River, on the upper Barycz River, and in the southern part of the Silesian Lowland. However, it is very likely that this is merely an effect of the state of research. The findings of pottery under consideration are by no means imitations or imports from local Neolithic groups, but refer technologically and stylistically to the pottery of Eastern European ‘Neolithic’ phenomena. They may be dated to the 5th millennium BC at the earliest, or most likely to the 4th and 3rd millennia BC, judging by analogies from the Central and Eastern European Lowland zone.⁴² Flint inventories accompanying this pottery are still poorly examined by archaeologists. However, the current state of knowledge indicates⁴³ that they are of Mesolithic

³² Kozłowski 1989; 2009.

³³ Galiński 2002.

³⁴ Gronenborn 2017.

³⁵ Marchand, Perrin 2017.

³⁶ Biagi, Starnini 2016.

³⁷ Galiński 2002; Kozłowski 2009; Kozłowski, Nowak 2019.

³⁸ Masojć 2016.

³⁹ Galiński 2002.

⁴⁰ Ginter 1975; Niesiołowska-Śreniowska, Cyrek 1975; Kozłowski 1989.

⁴¹ Bagniewski 2001; Masojć *et al.* 2009.

⁴² Józwiak 2003; Nowak 2009; Gumiński 2011; Kozicka 2017; Wawrusiewicz *et al.* 2017; Kozłowski, Nowak 2019.

⁴³ Mitura 1994; Górski, Zając 2001.

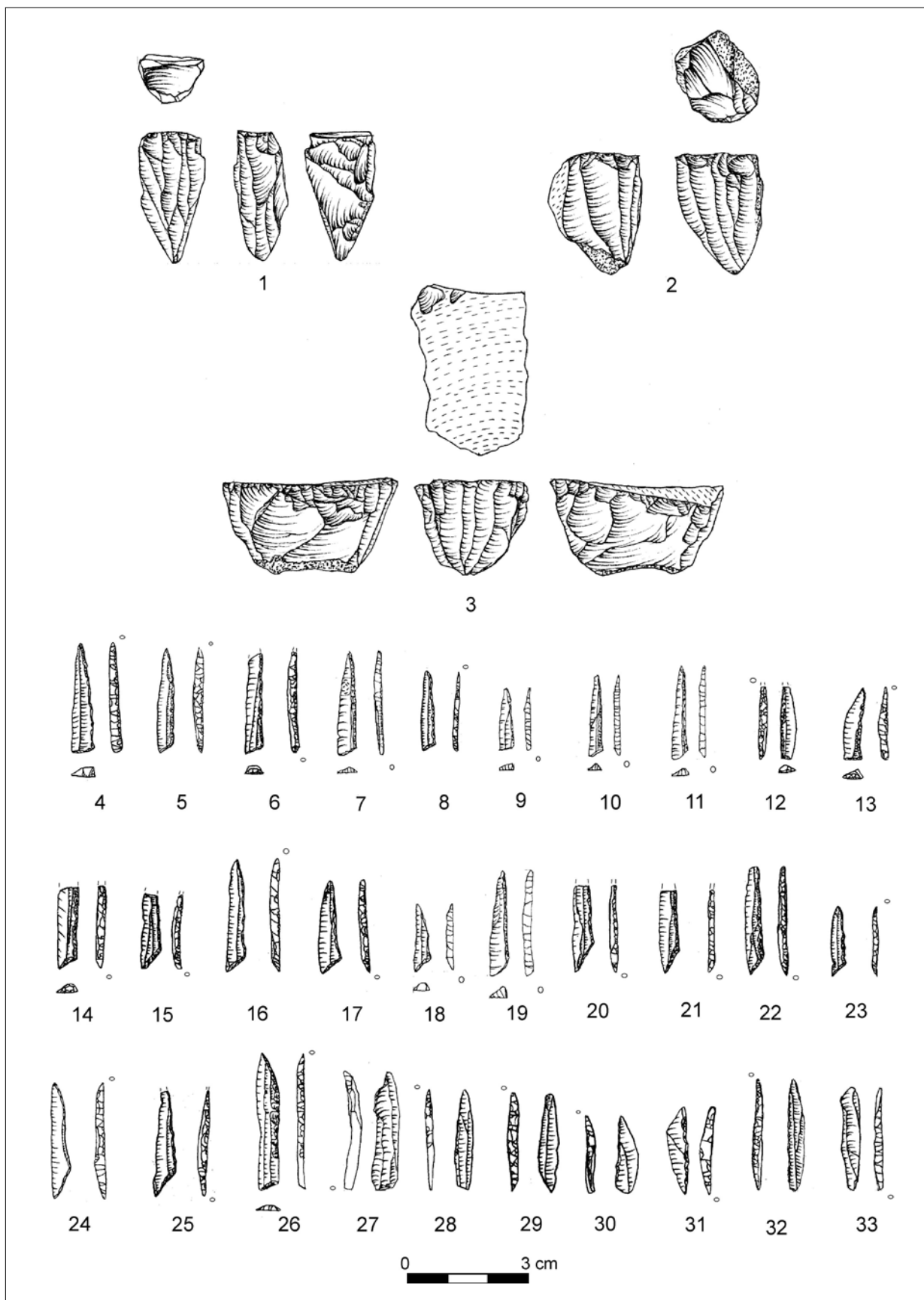


Fig. 5. Post-Maglemosian component from the site of Glanów 3; 1-3 cores, 4-25 – triangles, 26-28 – truncations, 29-33 – backed pieces.

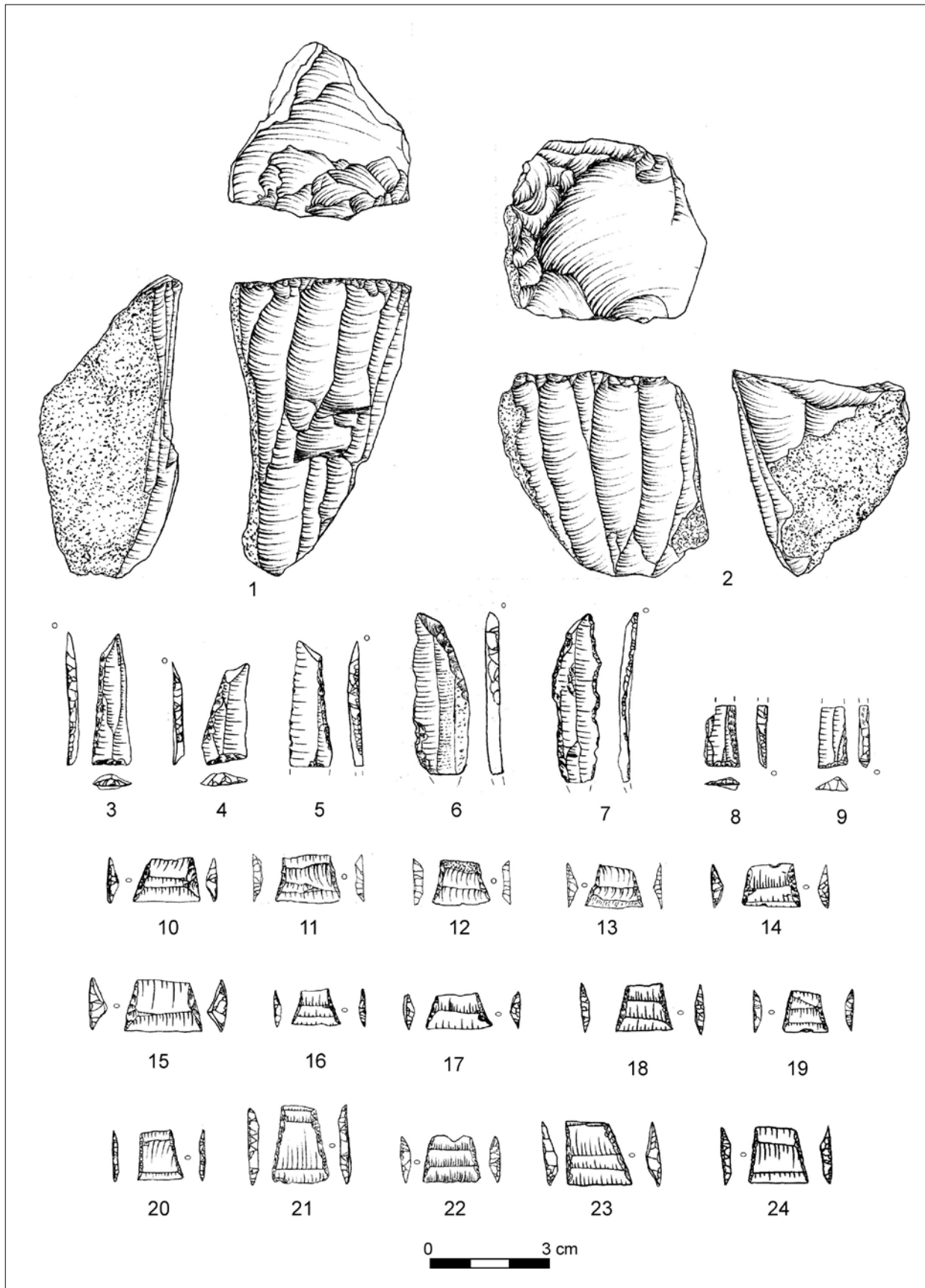


Fig. 6. Janisławician component from the site of Glanów 3; 1-2 – cores, 3-7 – truncations, 8-9 – triangles, 10-24 – trapezes.

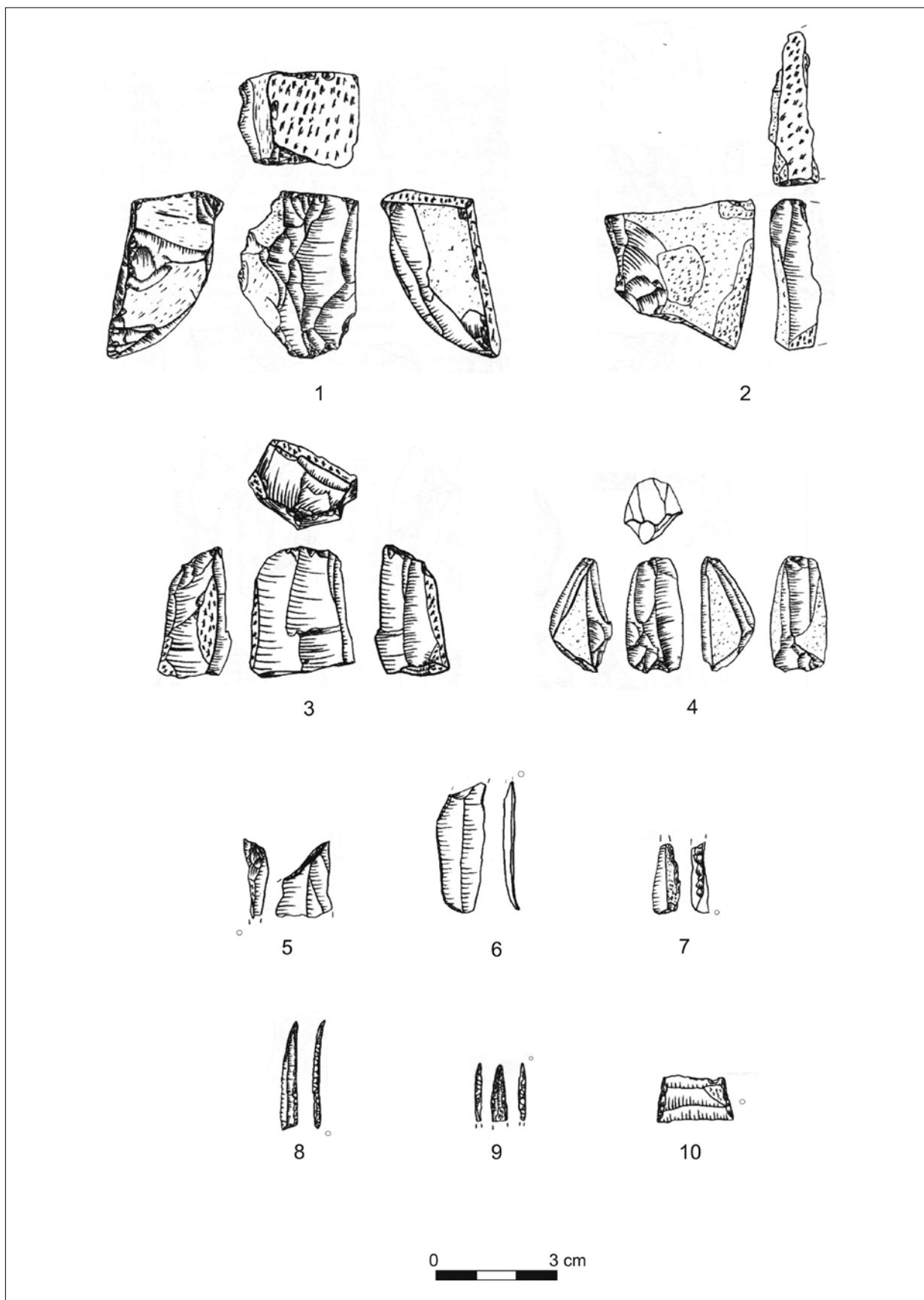


Fig. 7. Para-Neolithic flint artefacts from the site of Modliszewice (after Górski, Zajac 2001); 1-4 – cores, 5-7 – truncations, 8 – triangle, 9 – double backed piece, 10 – trapeze.

character. They are characterised by a peculiar eclecticism, i.e. a combination of Janisławice (Fig. 7: 1–3, 5–6, 10) and post-Maglemoste elements (Fig. 7: 4, 7–9), perhaps with a predominance of the former.⁴⁴ At the same time, there are features similar to those of the so-called Kokry industry (post-Janisławician), which has been dated to the 5th/4th millennia BC, such as the use of the splintered technique, very numerous side-scrapers, or microlithisation (when compared to Janisławice standards).⁴⁵ To sum up, we consider such ceramics to be a marker of the hunter-gatherer communities, which are a continuation of the classic ceramic-free Mesolithic communities. The use of the term ‘para-Neolithic’ to denote this state of the Late Mesolithic with pottery may be justified,⁴⁶ although of course there are many more alternative denominations.⁴⁷

Fortunately, one hundred and fourteen radiocarbon dates are known from the area of southern Poland which may be associated with the Late Mesolithic. They come from twenty-six sites. Single dates were obtained in twelve of these. There are larger series of dates from the Głanów 3 W (34 dates), Łykowe 1 (13 dates) and Mokracz 1 (10 dates) sites. Most of the dated sites are situated in the northern part of the area under consideration, in the lowland landscape zone. Most dates were obtained from charcoal.

At this point, we would like to clearly emphasise that we are fully aware of the controversies concerning the reliability of the early and mid-Holocene dates acquired at the sites of hunter-gatherer communities. These controversies are mainly due to the origin of almost all such dates from open, sand sites. Obviously, this fundamental problem has been extensively discussed in Polish literature.⁴⁸

This problem applies in full to southern Poland as well. As a matter of fact, the only exception is the site of Pobił 10,⁴⁹ where dating material comes from stratified peat layers. In many other sites, e.g. those containing materials from several settlement phases (such as Głanów 3, Ściejowice, Mokracz 1, Nieborowa, or Łykowe 1), traces of features were very poorly visible and the processes of multidirectional charcoal movements had undoubtedly taken place. Furthermore, this problem is multiplied by the state of publications which do not always allow a critical analysis of dates and their relation with flint (or ceramic) material. On the other hand, critical analyses and evaluations of the relation between radiocarbon dates

(and pottery) and the Mesolithic archaeological contexts have been carried out despite all difficulties.⁵⁰

While repeating, to a large extent, the arguments raised by one of the authors of the present paper,⁵¹ we would still like to make some points of a more general nature which may be a defence of sorts of the dating in question (obviously not only in regard to southern Poland).

Firstly, a certain arbitrariness of the scientific reasoning in this matter should be noted. Namely, objections to homogeneity are articulated only in relation to the late-Atlantic and later contexts. But why are earlier situations not considered suspicious? As we believe, this is the result of our linear vision of cultural development in prehistoric times, derived from archaeological education. As a result, one even subconsciously recognises that hunter-gatherer communities developed in the pre-Boreal, Boreal, and early-Atlantic periods, perhaps without paying so much attention to their contexts. In practice, dates within these periods are automatically accepted. On the other hand, later dates, parallel to the Neolithic phenomena, are considered suspicious and unreliable from the outset.

Secondly, we believe that the supporters of the ‘short chronology’ of the Mesolithic do not give much thought to the rather fundamental question of what actually happened to the hunter-gatherer populations after the emergence of the early Neolithic. In fact, it is difficult to propose any real reasons for the possible disappearance of hunter-gatherer communities until the spread of the Funnel Beaker culture, outside ‘old-agricultural’ enclaves. Otherwise, it should be considered that these areas were essentially uninhabited and only sporadically penetrated by the Neolithic, ‘Danubian’ groups. The absorption of such Mesolithic populations, or their extermination, is of course possible, but these constructs are even riskier.

Thirdly, there is the statistical value of a large series of dates which form a dense cloud. In short, more than a hundred dates for southern Poland are a fairly large number – do all of them erroneously date the contexts in which they were found?

We would also like to add that, in our opinion, the link between charcoal (and the date received) and human activity from the Holocene period remains open. As far as radiocarbon dates are concerned, a radical standpoint assumes that dates should be acquired only from hazelnut shells or charcoal from fires, preferably from pits.

⁴⁴ Kobusiewicz 1999; 2006; 2016.

⁴⁵ Cyrek *et al.* 1985; Górski, Zajac 2001.

⁴⁶ Kobusiewicz, Kabaciński 1993; Kobusiewicz 2006; 2016; Nowak 2009; 2019; Kozłowski, Nowak 2019; Gumiński 2020.

⁴⁷ For instance, Kempisty 1982; 1983; Gronenborn 2003; Nowak 2009, 216; Piezonka 2015.

⁴⁸ For instance, Schild 1989; 1998.

⁴⁹ Bagniewski 1990; Masojć 2007.

⁵⁰ For instance, Galiński 1991; Masojć 2005; Nowak 2009, 244; Galiński 2016; Kozłowski, Nowak 2019, 179, see further references therein.

⁵¹ Nowak 2009, 244–245; Kozłowski, Nowak 2019, 178–181.

⁵² Crombé *et al.* 2013.

Dates from other charcoal samples are erroneous.⁵² This approach assumes that natural fires could occur in the early Holocene forests,⁵³ and is also represented by some biologists⁵⁴ who indicate the possibility of natural fires in dry, mainly cold phases, in pine-dominated stands. However, Central European literature assumes that early Holocene forest fires were mainly man-made.⁵⁵ This is confirmed by palaeobotanical⁵⁶ and archaeological studies,⁵⁷ which even point to the existence of intentional forest management during the Mesolithic period. In this paper it is therefore assumed that Holocene charcoal is essentially a trace of deliberate human activity. Consequently, a number of 'young' dates have been taken into account (e.g. from Brodno E and Bartków 7),⁵⁸ since they were considered to reflect the 'young', hunter-gatherer settlement episodes that were not necessarily caught in the flint material.

All of the Late Mesolithic/para-Neolithic dates that we took into account have been calibrated in OxCal v4.3.2.⁵⁹ In six cases, a combined calibration ('R_Combine') was used for dates derived from a single piece of wood or a compact fireplace. If samples were derived from a dispersed fireplace (four cases from Głanów 3 W), the dates were grouped into phases. For multiple date sites, where a priori data were not clearly readable, non-parametric 'KDE' (Kernel Density Estimation) modelling was used for each site.⁶⁰ This made it possible to distinguish specific groups of dates at a given site which were then used for parametric Bayesian analysis, i.e. for defining the boundaries of the dates that had been grouped this way. The date distribution boundaries were also modelled for single dates. For comparative purposes, similar procedures were also performed for the available LBK dating results. Forty-seven settlement episodes ('phases') were generated using such modelling (Fig. 8). Moreover, KDE modelling was carried out for all of the Mesolithic/para-Neolithic and LBK dates (Fig. 9), as well as for three geographical regions (Figs 10–12), which were of course distinguished somewhat arbitrarily. The modelling of the 'hunter-gatherer' dates for the regions did not include data from the upper Warta River area (Fig. 4, nos. 16, 20, 26, 42); it was decided that this area was too distant from both the western Małopolska and the Lower Silesia regions.

As can be seen in Figures 8 to 12, there are sites dated to the 6th and 5th millennium BC in every part of southern Poland. What is more, there are also dates that indicate the 4th millennium BC, or even the 3rd and the first

half of the 2nd millennium BC. Consequently, the Late Mesolithic and para-Neolithic dates represent all of the above-mentioned phases of cultural and stylistic transformations evidenced in the hunter-gatherer contexts in southern Poland. Younger dates include determinations from para-Neolithic sites on the Warta River (Osjaków 3, Łykowe 1, and Mokracz 1); their chronology is, therefore, supported by the presence of pottery. Besides these, this group includes dates from Głanów 3 and single dates from other sites. Because of the above claims concerning the credibility of the 'non-Neolithic' Holocene dates, we assume that a connection between the discussed dates and the youngest developmental phases of the hunting and gathering communities of southern Poland cannot be excluded.

The radiocarbon data also clearly show that Late Mesolithic/para-Neolithic communities functioned simultaneously with 'Linear' communities (Figs 8–12). What is more, as we already know, the hunter-gatherer groupings, both without ceramics and 'ceramicised', lived in southern Poland for a longer period of time, parallel not only with the 'post-Linear' units in the 5th millennium BC, but also with later Neolithic or even Early Bronze Age groupings.

Zones of the Mesolithic and Early Neolithic settlement

As is known, the LBK and 'post-Linear' sites were very clearly concentrated on the fertile 'islands' located mainly in the upland and submontane areas. The Mesolithic sites, including Late Mesolithic/para-Neolithic sites, on the other hand, are located mostly outside such islands and on their outskirts. It seems that one of the characteristics of the Mesolithic settlements in southern Poland was the avoidance of areas with large differences in elevation, i.e. areas for which the standard deviation of relative heights in fields with an area of 3 sq. kilometres was over 15 metres.⁶¹ Preference was given to areas for which the standard deviations of relative altitudes were within the range of 4 to 10 metres. Most of the sites are located in the landscape zones of periglacial lowlands and terraces exposed over floodplains. Thus, the model known from the lowland areas is repeated. On general maps, this gives the impression that – in some regions, such as western Małopolska – the Late Mesolithic sites are situated in the 'loess' zone, but this is not the case. They are still located

⁵³ For instance, Crombé 2016.

⁵⁴ Daniau *et al.* 2010; Dreibrodt *et al.* 2010; Marlon *et al.* 2013.

⁵⁵ Dietze *et al.* 2018.

⁵⁶ Wacnik *et al.* 2011; Wacnik *et al.* 2020.

⁵⁷ Bishop *et al.* 2015; Kuosmanen *et al.* 2018.

⁵⁸ See Masojć 2005.

⁵⁹ Bronk Ramsey 2009; Reimer *et al.* 2013.

⁶⁰ Bronk Ramsey 2017.

⁶¹ Śleszyński 2012.



Fig. 8.a. Modelling of ¹⁴C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in southern Poland (see text, p. 58).

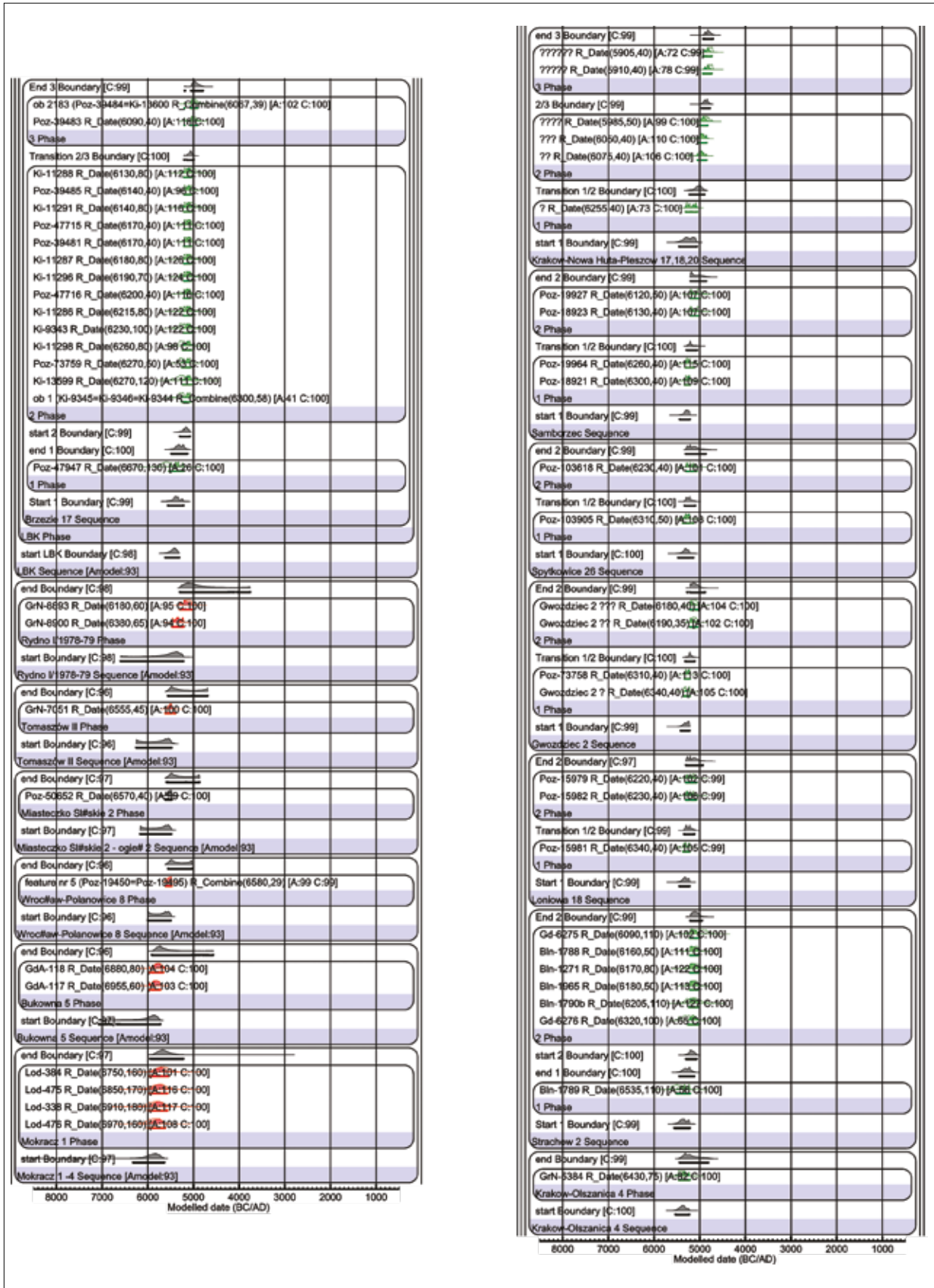


Fig. 8.b. Modelling of ¹⁴C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in southern Poland (see text, p. 58).

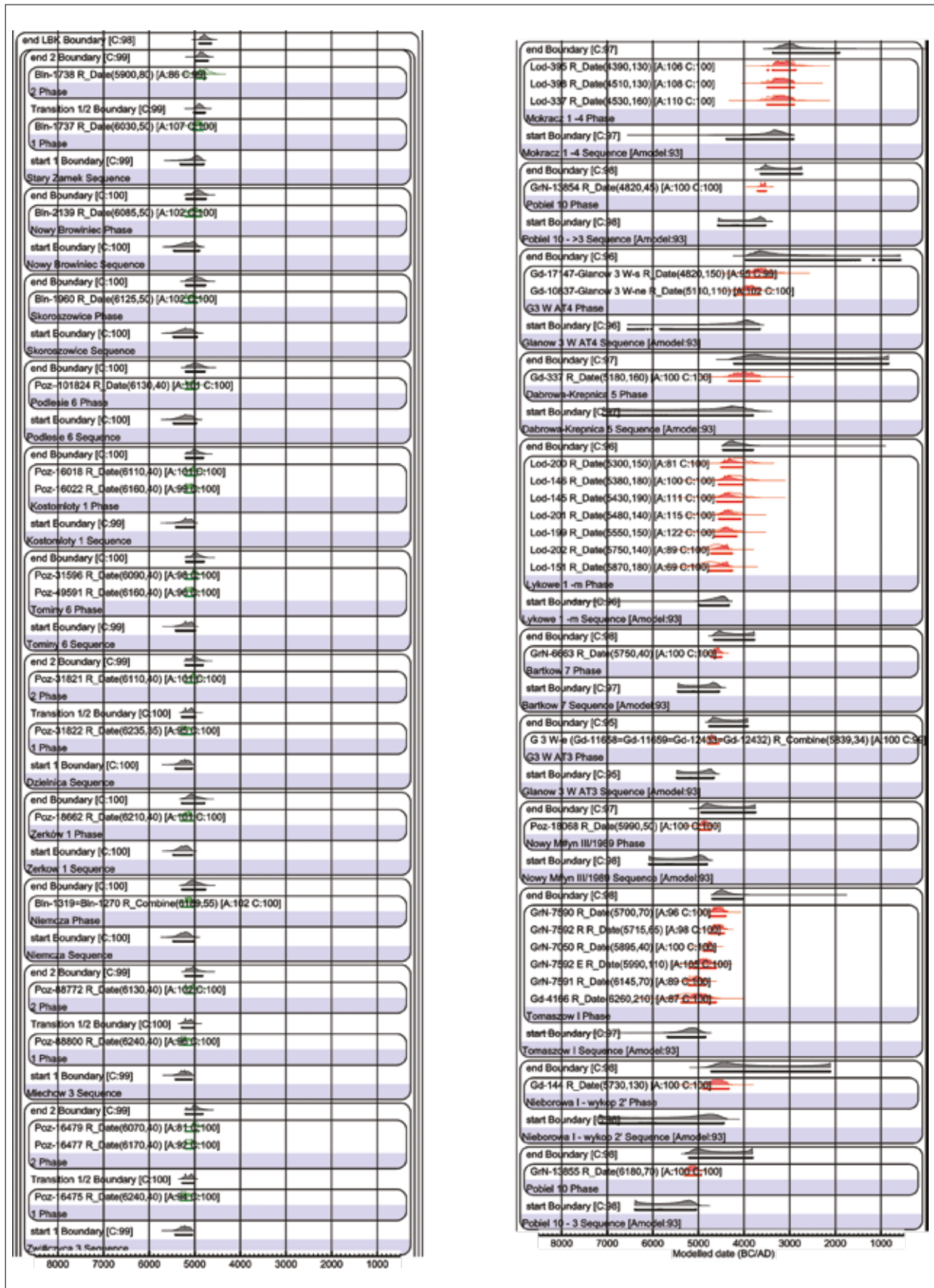


Fig. 8.c. Modelling of ¹⁴C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in southern Poland (see text, p. 58).

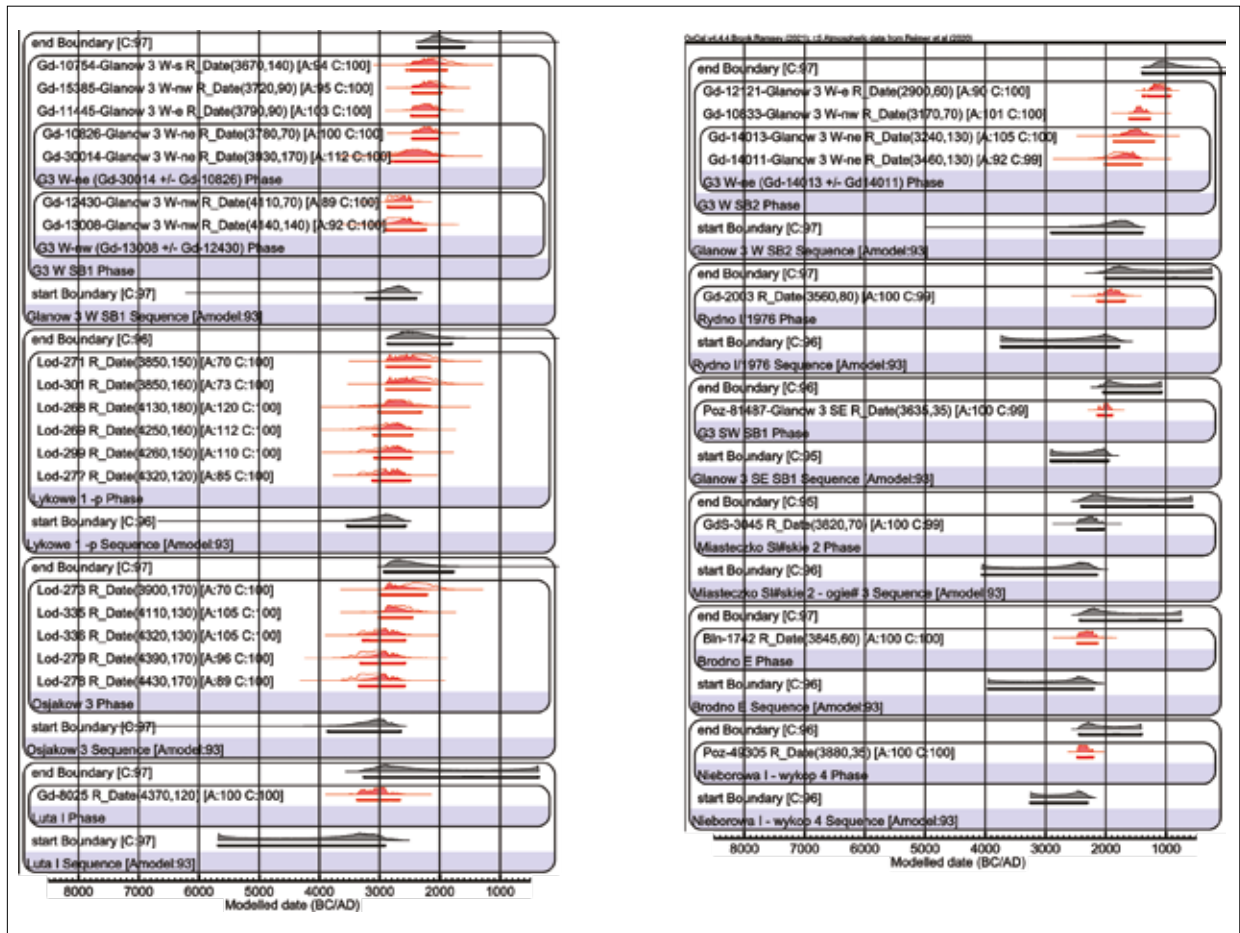


Fig. 8.d. Modelling of ¹⁴C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in southern Poland (see text, p. 58).

other, topographically and ecologically distinct zones. In the region mentioned above, the sites are related to the alluvial environment of the upper Vistula River basin in the Kraków region (Fig. 13). A similar picture has been demonstrated for Lower Silesia.⁶²

In the upland landscape zones, carbonate as well as siliceous and aluminosiliceous highlands were preferred by Mesolithic settlements. A closer analysis of the location of the camps indicates that the areas with upland landscapes were ‘entered’ through the valleys that cut them off. This is visible both on a regional scale in southern Poland and when studying smaller areas, e.g. the Tenczynek Hummock⁶³ or the Ojców Plateau.⁶⁴ Areas covered by loess formations are not occupied by Mesolithic settlements. The few Mesolithic sites formally located within the loess formations are also almost always associated with valleys that cut them off.

To sum up, the Late Mesolithic and the LBK/post-Linear settlement zones differed topographically and ecologically.

Comparison of chipped lithics

Let us contrast chipped lithic inventories of both formations (Figs 14–15).

As far as raw material issues are concerned, the Early Neolithic saw a specialized extraction of good quality flints (Jurassic flint near Kraków, chocolate flints) and the existence of an organized network of their distribution.⁶⁵ The Late Mesolithic groups still relied on local raw materials. Although progressive ‘Castelnovisation’ undoubtedly involved the search for flint concretions of certain qualities, this does not mean that in the case of their shortage Mesolithic flint workers were unable

⁶² Masojć *et al.* 2009.

⁶³ Zakrzewska, Zajac 2018.

⁶⁴ Zajac 2006.

⁶⁵ Balcer 1983; Ehlert 2014.

to access and use suboptimal sources (e.g. alluvial concretions of erratic origins). There are also no indicators of a wide exchange network. Generally speaking, when comparing the raw material economy of the Early and Late Mesolithic, there are no major changes. Only the range of chocolate flint seems to increase slightly.⁶⁶

As regards the cores, there are similar single-platform specimens for relatively regular, slender blade blanks in both LBK and Late Mesolithic sites (Figs 14: 1–4; 15: 1). However, in the Late Mesolithic, smaller single-platform cores used to produce bladelets (Fig. 15: 2–4) and cores for flakes were also relatively frequent. Actually, even the similarities between these cores for larger blades are rather formal. Among other things, there are technological differences in platform preparation. The Late Mesolithic specimens have retouched platform edges much more frequently. Differences of this type can also be noticed in blanks. Finally, in general, Late Mesolithic blade blanks tend to be a bit smaller than the ‘Linear’ ones.

In the case of LBK, important tool groups include blade end-scrapers (Fig. 14: 16–21) and blade truncations, usually with silica gloss (Fig. 14: 8–15). In the Late Mesolithic, such tools were not so frequent; certainly, truncations do not bear traces of silica gloss (Fig. 15: 33–39), and end-scrapers were most often made on flakes (Fig. 15: 45–46). Overall, in the Late Mesolithic inventories, side-scrapers (Fig. 15: 40–44) and geometric microliths still predominate among the tools (Fig. 15: 5–24), whereas trapezes are important or predominant in the latter group.

Of course, trapezes are known from both the Late Mesolithic and the LBK. However, in the LBK they are very rare and consist mainly of standard high trapezes (Fig. 14: 5–7). The Late Mesolithic trapezes are much more diversified due to, among others, the greater diversity of blank forms (Fig. 15: 19–24). In addition, the microburin technique is not present in the LBK, contrary to the Mesolithic (Fig. 15: 25–32).

Other tools, such as burins or perforators (Figs 14: 22–25; 15: 48–50), are less common in both the LBK and the Late Mesolithic industries. Elements of the bipolar flaking technique are rare in both cases (Figs 14: 26; 15: 51).

The finds of unpolished axes/adzes are known only from Late Mesolithic sites (Fig. 15: 47).

In general, it is our belief that clear differences are visible in flint inventories and it is impossible to demon-

strate any exchange of flint artefacts between the Late Mesolithic and the LBK groups.

A glimpse at the 4th millennium BC (and beyond)

The cultural situation in southern Poland changed radically in the first half of the 4th millennium BC. The ‘new’ Neolithic archaeological unit, i.e. the Funnel Beaker culture (TRB), was spreading at the time. This process embraced both ‘old-agricultural’ enclaves and – to a large extent – the ‘Mesolithic’ areas outside them. There are clearly more TRB sites when compared to the ‘Danubian’ Neolithic, not only in the latter areas but also within the former ones.⁶⁷

Theoretically, therefore, it may seem that – similarly to the lowlands⁶⁸ – the genetic pool of the southern TRB groups consisted of a late post-Linear and Late Mesolithic component. Currently, however, it is difficult to support this hypothesis with a specific rationale. The ceramics of the southern TRB certainly has some elements in common with the late Lengyel-Polgár complex (L-PC). This includes both the technology (temper of broken sherds) and some vessel proportions,⁶⁹ but one should always bear in mind the risk that it could be a formal similarity. If, however, it is not an accidental and formal issue, this situation may be a sign of a quite rapid cultural change – at least in terms of the pottery repertoire. By the way, there are also signs of ceramic exchange between these two cultural circles.⁷⁰ Of course, such an exchange may not necessarily prove genetic dependence but only parallel development and some interactions.

Flint inventories of the TRB in southern Poland are certainly very diverse. In other words, not only the state of lithics, which B. Balcer⁷¹ described as the “Małopolska industry”, is typical for this branch of the TRB.⁷² It can be assumed that this industry originates from the pattern of flint industry typical for the late L-PC groups, that is, primarily the Lublin-Volhynian culture and the Wyciąże-Złotniki group. However, it would be difficult to point out any obvious similarities of TRB flint materials other than from the Małopolska industry to those of the Late Mesolithic, with the exception of certain features such as small blades, single trapezes and side-scrapers, and splintered pieces,⁷³ which again, unfortunately, may be of formal character (but not necessarily!). Another matter

⁶⁶ Cyrek 1981.

⁶⁷ Kruk *et al.* 1996; Nowak 2009, see further literature therein; Król 2018; Pelisiak 2018; Kozłowski, Nowak 2019.

⁶⁸ Nowak 2009; Kozłowski, Nowak 2019.

⁶⁹ Nowak 2004.

⁷⁰ Kulczycka-Leciejewiczowa, Noworyta 2009; Kruk, Milisauskas 2018, 65.

⁷¹ Balcer 1983; 1988.

⁷² Kozłowski, Nowak 2018; 2019, 194–198, 217–218.

⁷³ Nowak 1994.

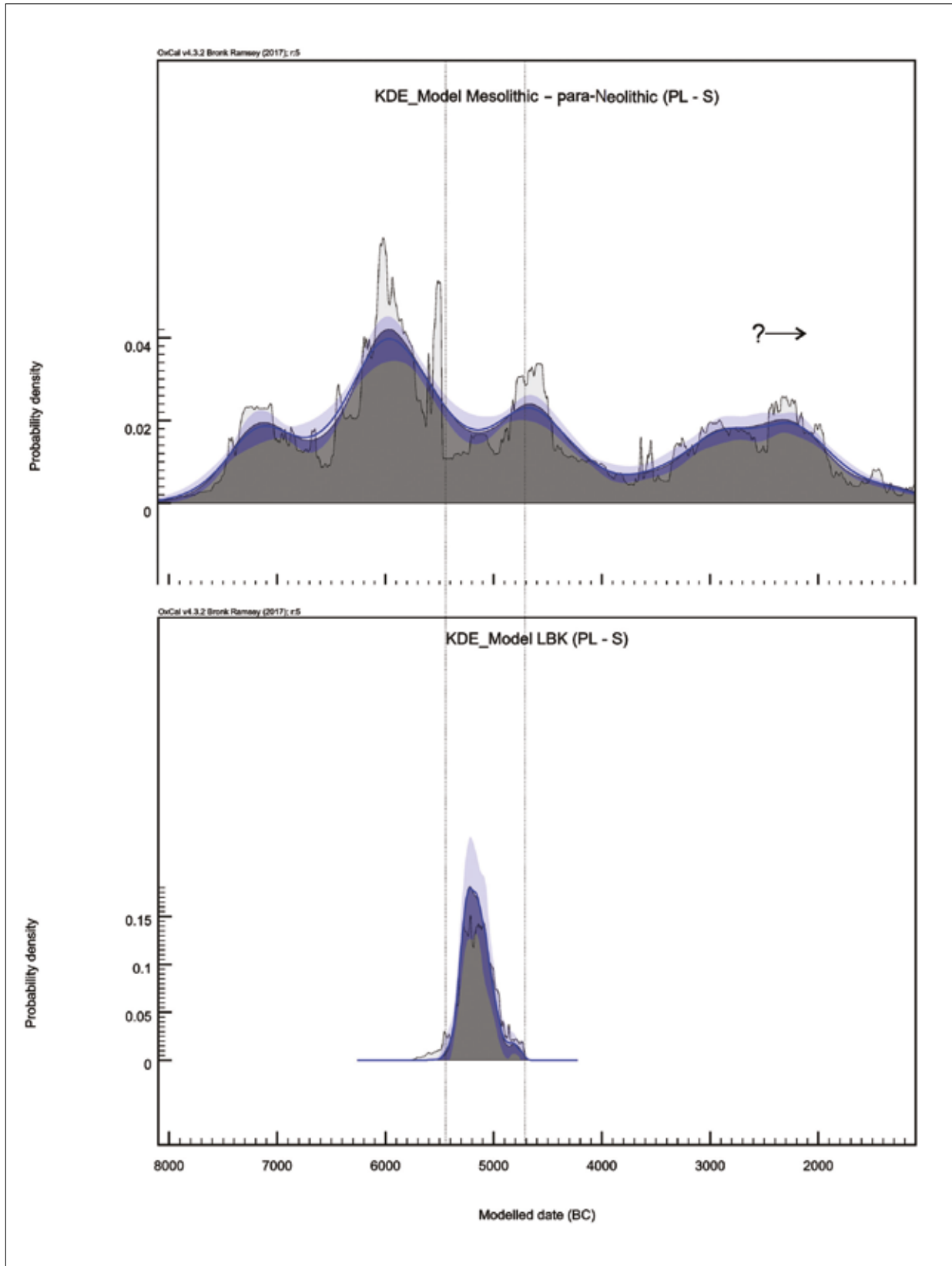


Fig. 9. KDE modelling of all ^{14}C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in southern Poland.

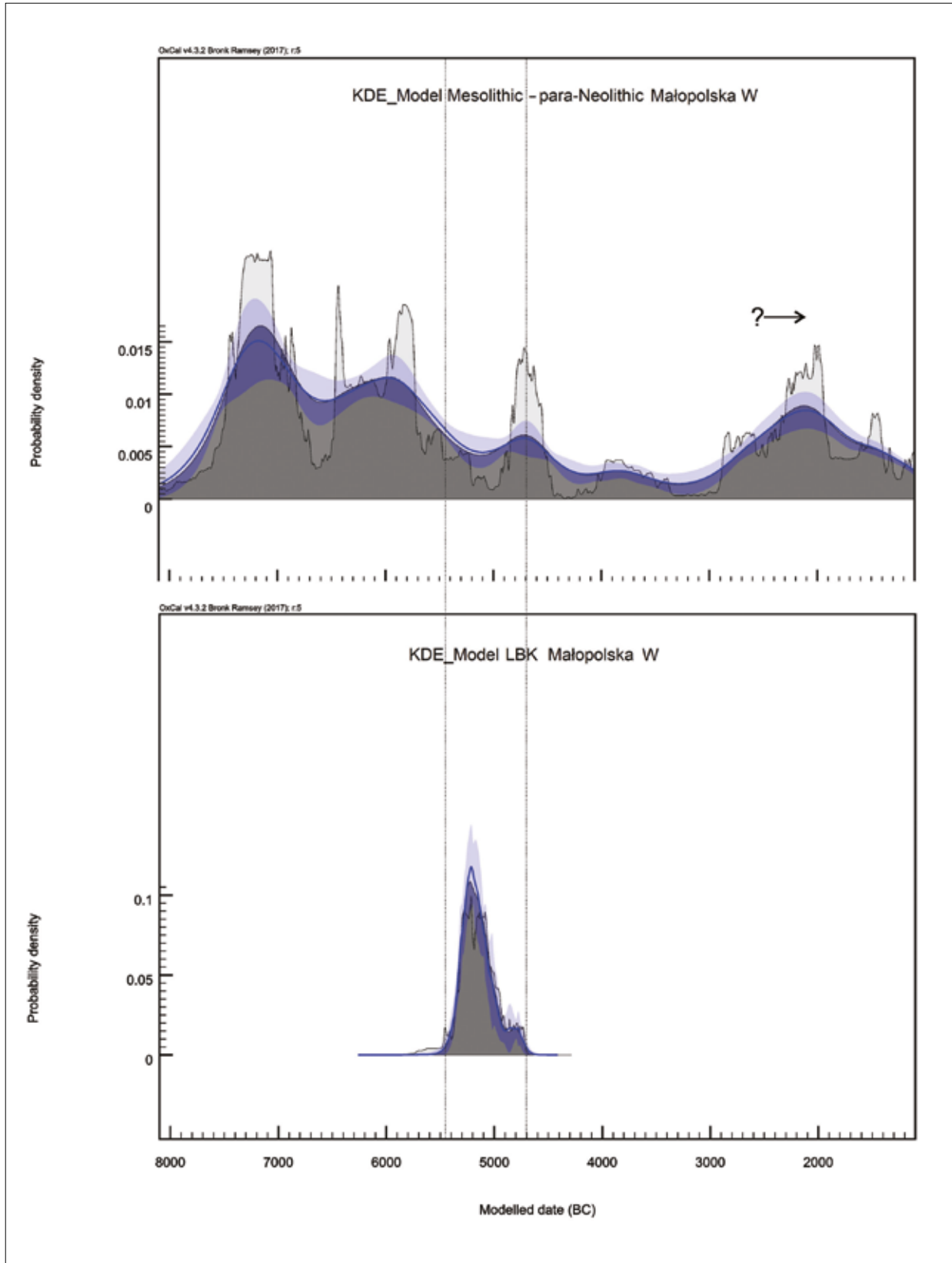


Fig. 10. KDE modelling of ^{14}C dates from the Late Mesolithic, para-Neolithic and Early Neolithic sites in western Malopolska.

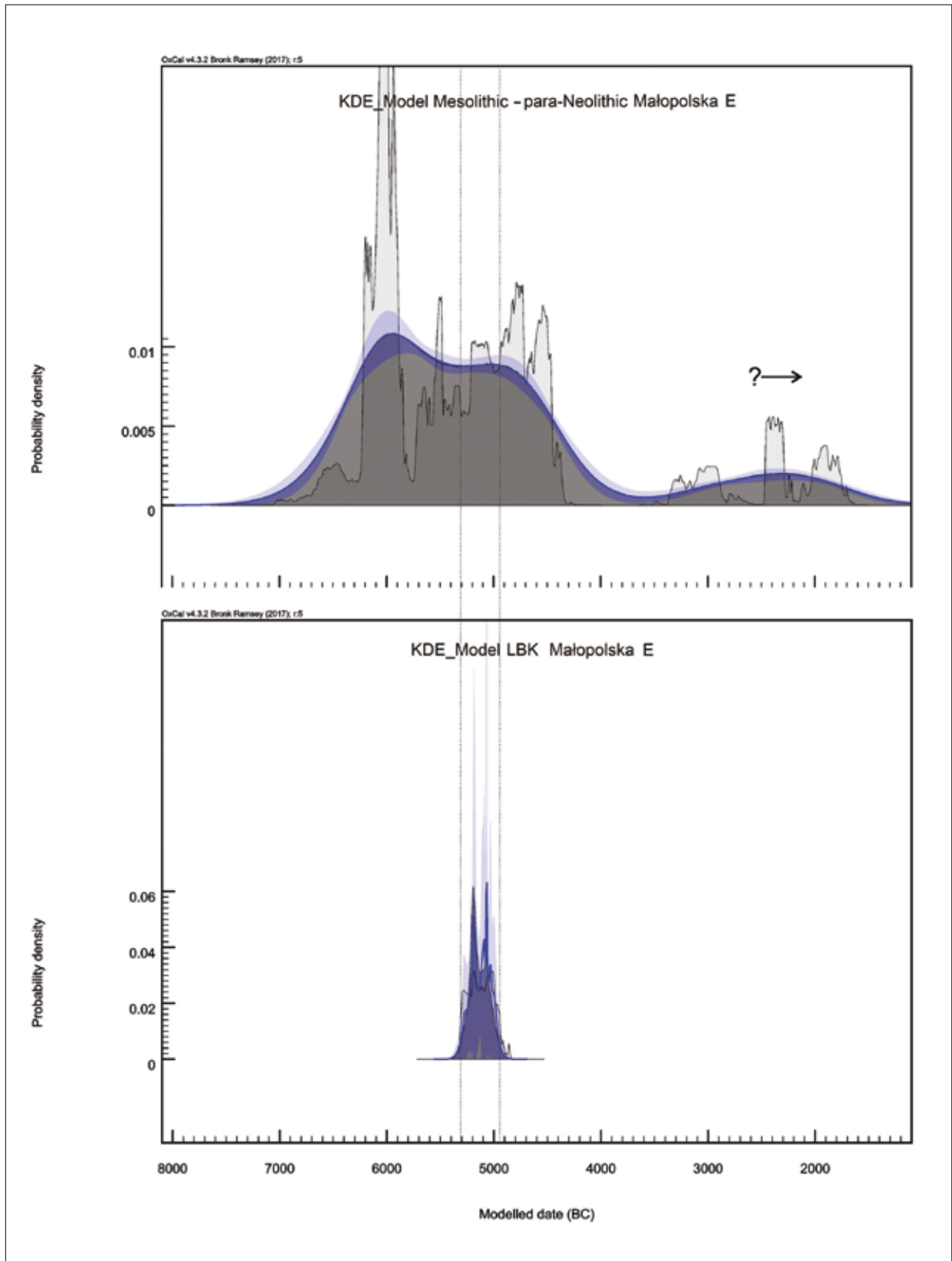


Fig. 11. KDE modelling of ^{14}C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in eastern Małopolska.

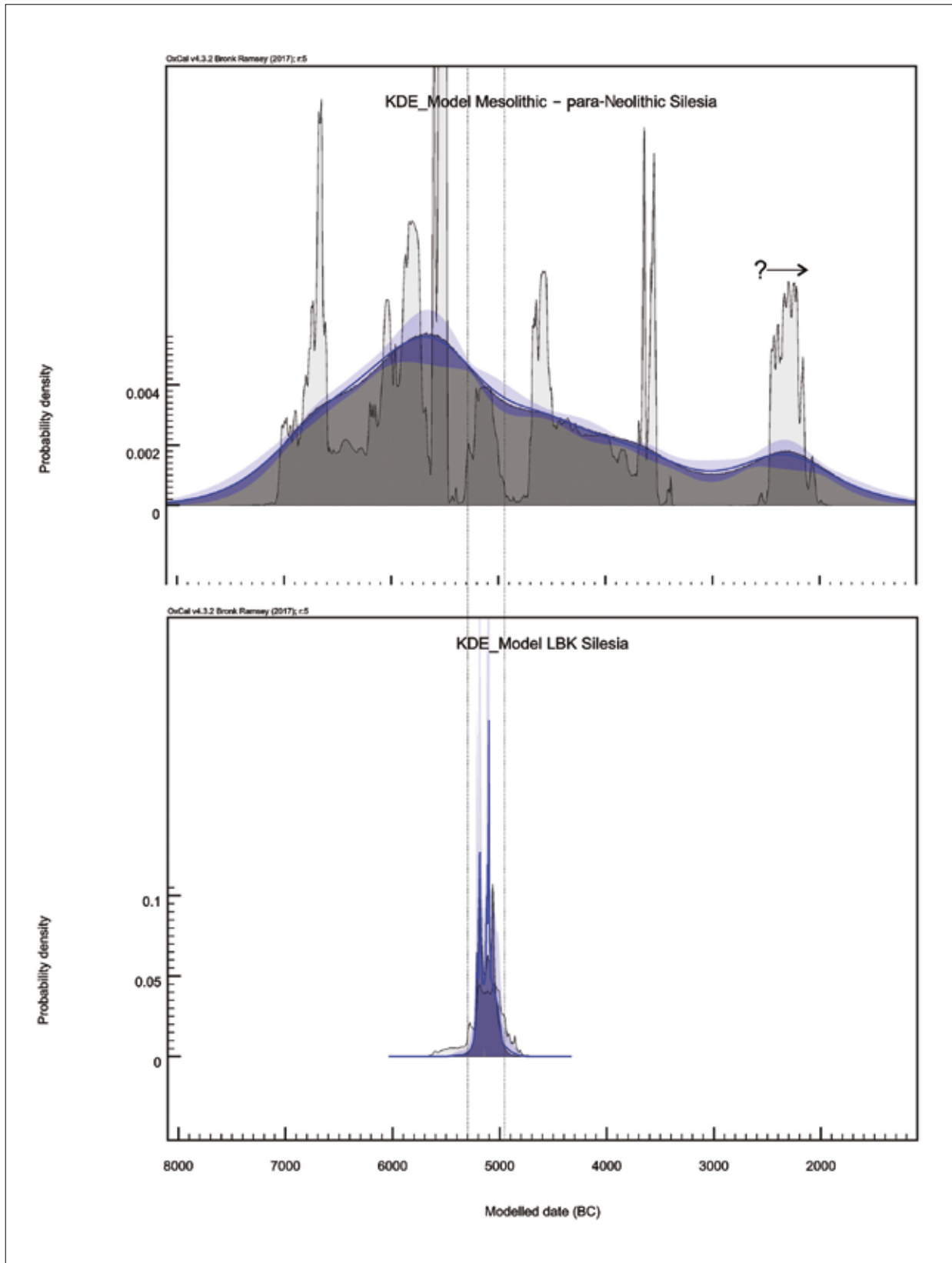


Fig. 12. KDE modelling of ^{14}C dates from the Late Mesolithic, para-Neolithic, and Early Neolithic sites in Silesia.

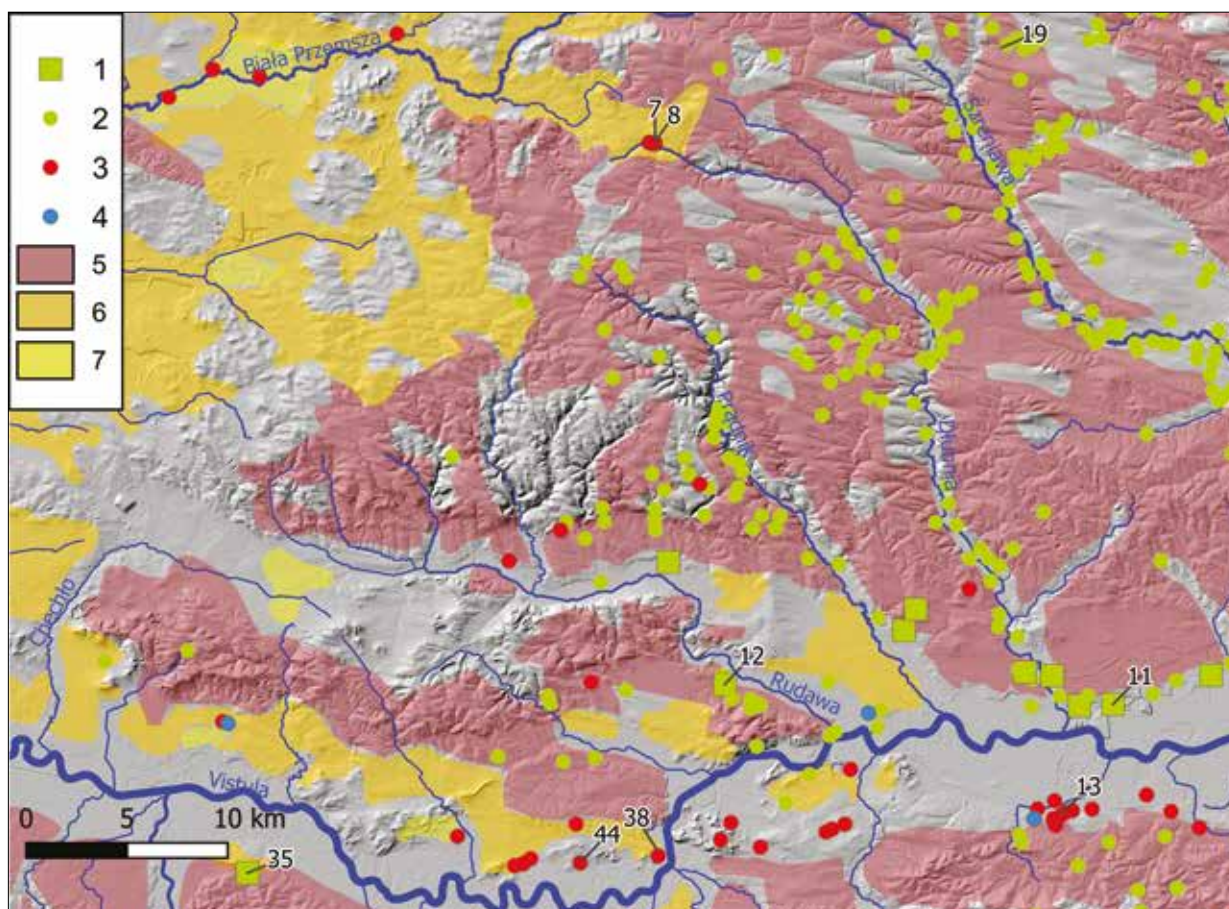


Fig. 13. Late Mesolithic and Early Neolithic settlement in the southern part of the Kraków-Częstochowa Upland and the neighbouring areas; 1 – LBK sites with long houses, 2 – LBK sites, 3 – Late Mesolithic sites, 4 – para-Neolithic sites, 5 – loess covers, 6 – sands, 7 – aeolian sands. Numbers refer to sites as in Fig. 4.

is that ‘sand’ chipped lithics of the southern TRB are very poorly recognized.

One way or another, the problem in question is open, although it is our belief that the previously suggested scenario remains an acceptable working hypothesis.

However, regardless of that, it should be emphasised at this point that apparently not the whole Late Mesolithic entered the TRB, or was eliminated by the TRB, because – as already mentioned – there are ^{14}C dates from hunter-gatherer contexts parallel to the TRB, and even later ones since the TRB existed in southern Poland only until ca. 2800 BC. Also, para-Neolithic pottery testifies to this late chronology of the hunter-gatherer groupings.

Conclusions

Summarising the facts presented above and the proposals for their interpretation, we believe that the following points should be highlighted:

- Migration, perhaps in the form of leapfrog colonisation,⁷⁴ is the most likely scenario for the emergence and spread of the LBK in southern Poland.
- Neolithic farmers coexisted in this territory with the Late Mesolithic or para-Neolithic hunter-gatherers throughout the whole Neolithic period.
- Until the beginning of the 4th millennium BC, hunter-gatherers and farmers essentially inhabited and exploited different ecological zones; the former

⁷⁴Zvelebil 2001.

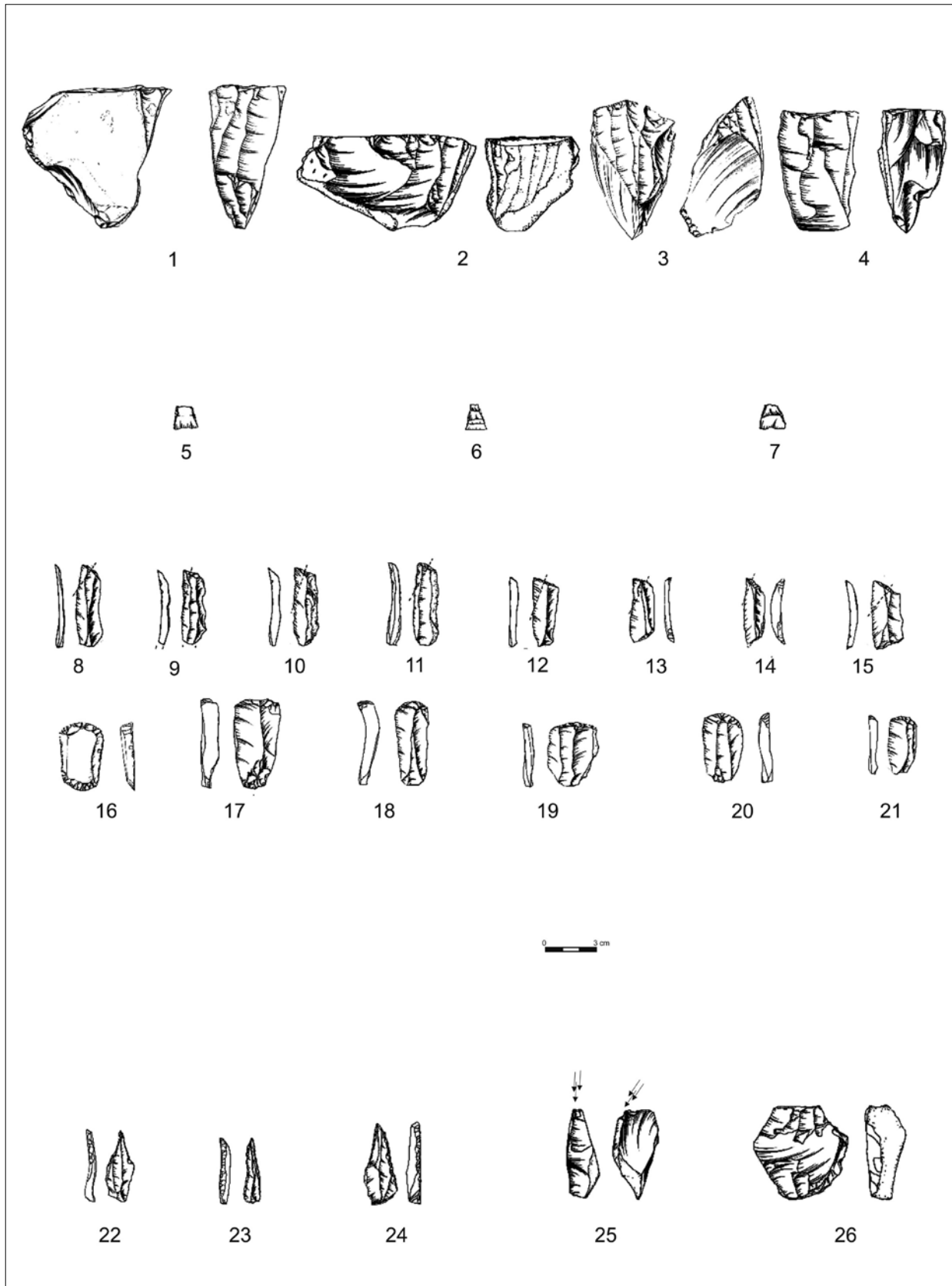


Fig. 14. Selected LBK chipped lithics from the site of Brzezcie 17 (after Wilczyński 2014); 1–4 – cores, 5–7 – trapezes, 8–15 – truncations, 16–21 – end-scrapers, 22–24 – perforators, 25 – burin, 26 – splintered piece.

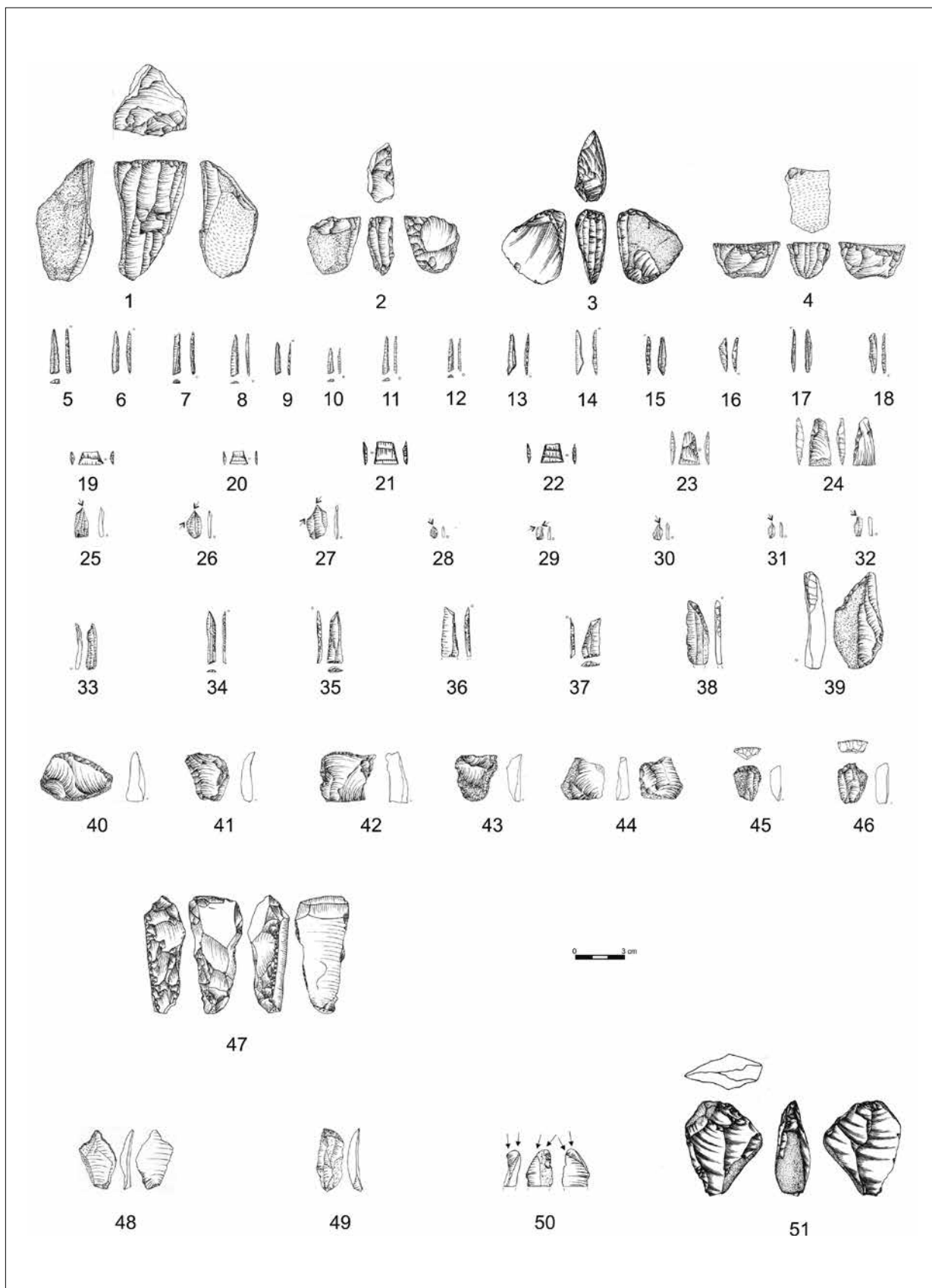


Fig. 15. Selected Late Mesolithic chipped lithics from the site of Glanów 3; 1–4 – cores, 5–15 – triangles, 16–18 – backed pieces, 19–24 – trapezes, 25–32 – microburins, 33–39 – truncations, 40–44 – scrapers, 45–46 – end-scrapers, 47 – unpolished axe/adze, 48–49 – perforators, 50 – burin, 51 – splintered piece.

would prefer 'sandy' and 'alluvial' zones, whereas the latter – the 'loess' zone. However, the areas that may conventionally be called 'sandy' and 'alluvial' were incomparably smaller than in the lowland zone and in many regions mixed with the loess areas. It is therefore possible that the vicinity of agricultural and hunter-gatherer groups was very close, sometimes even within sight (see the upper Vistula or Widawa rivers).

- The concept of a single, uninterrupted front between the Neolithic and Mesolithic populations, running across all of Central Europe,⁷⁵ at least in the case of southern Poland in the 6th and 5th millennia BC, is incorrect, although it appears attractive and has repeatedly been presented in many general studies. The symbolically-treated notion of a 'CHESSBOARD'

seems more appropriate to describe the spatial relationship of these formations.

- Contacts and interactions between the Late Mesolithic and the LBK/post-LBK were quite limited. The Late Mesolithic communities, in essence, did not participate in this stage of neolithisation. We do not claim that there were absolutely no contacts between these cultural formations. For instance, they seem to be traceable in the single haplotype U5b identification from the skeleton of the Malice culture at the site of Kazimierza Mała.⁷⁶
- Certain late Mesolithic populations underwent 'Beaker' acculturation, but some continued to function in undisturbed form (including the para-Neolithic form), at least until the end of the 3rd millennium BC.

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⁷⁵ For instance, Fernández *et al.* 2014; Silva, Vander Linden 2017.

⁷⁶ Chyleński *et al.* 2017.

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DIFFERENT APPROACHES TO RESEARCH ON THE INTERACTIONS BETWEEN HUNTER-GATHERERS AND GROUPS OF FARMERS AND BREEDERS

ABSTRACT

Interactions between hunter-gatherers and groups of farmers and breeders have been a subject of archaeological debate for many years. Thanks to the application of different scientific approaches, ranging from material studies to archaeometric analyses, the discussion has not lost its relevance. The aim of this study is to present the

evolution of scientific investigations related to these interactions and to emphasise the potential of the debate: despite the passing of time, it remains an open research issue. The complexity of this discussion will be demonstrated through selected case studies from all around Europe.

Keywords: hunter-gatherers, farmers and breeders, theories and models, material studies, archaeometry, Europe

Introduction

Since the time of V. G. Childe, interactions between hunter-gatherers and groups of farmers and breeders have sparked intense debate. At the beginning, these contacts were examined rather in terms of the dominance of exogenous groups with a productive economy over local foragers who conveyed a general “impression of extreme poverty”.¹ Childe stated that the new qualities brought by the newcomers spread rapidly in a process which he called ‘the Neolithic revolution’.² This term implied either the total disappearance of indigenous people or their subjection to new socio-economic realities.³ A significant change in understanding the status of the hunter-gatherer communities took place gradually as the reflection on their material culture and the relics of “Mesolithic” activity evolved.⁴ The presence of hunter-gatherers started to be regarded not as an expression of “a hiatus or period of quarantine between the Old and New Stone Ages”,⁵ but rather as “an essential prelude to fundamental changes in the development of culture”.⁶ The subsequent development of research on areas such as technology, settlement, subsistence, demography and organisation con-

tinued,⁷ and structures related to foraging finally started to be evolutionally “appreciated” as a result. Since then, the richness of technological and cultural achievements of hunter, gatherer, and fisher populations have been brought to attention and it became obvious why the idea of a rapid ‘Neolithisation’ was inadequate. The main questions that arose were the following:

1. In what manner did the process of Neolithisation occur?
2. What kind of relations emerged between the locals and the newcomers ca. 8000 BP, when the first agricultural, pottery-carrying communities appeared in the Aegean, the Balkan and other Mediterranean territories in general?

At the core of this paper lies the assessment of the potential and complexity of this discussion, as well as the related theories, models and approaches, from material studies to archaeometric analyses. All of these aspects are going to be presented on the basis of selected examples from Europe. The present contribution aims to demonstrate the potentialities of each method and, above all, to highlight the richness of modern research possibilities and of the discussion itself.

¹ Childe 1942, 36.

² For instance Childe 1929.

³ Childe 1925.

⁴ After Price 1983, 770.

⁵ Price 1983, 770.

⁶ Clarke 1980, 7.

⁷ See Price 1983, 770.

⁸ Czernik 1976, 59.

The first studies on Neolithic interactions

As stated by S. A. Czarnik, the definition of the ‘Stone Age’, introduced by C. J. Thomsen was an elementary idea that, with some minor changes, has so far served as a reference point for continental archaeologists.⁸ Having undergone a chronological division, the concept became one of the main paradigms in European archaeology and until now there have been no signs that this is going to change. However, from the very beginning, this definition has exhibited a strong dichotomy, highlighting only the boundaries, not the commonalities between cultures. Subsequently, processualist thinking came up with the idea of a much more complex diffusion that could have occurred, although only in one direction: from the newcomers to the local populations. Still, researchers did not take into consideration any possible interfusion of phenomena that might have acted as a link. This was demonstrated particularly in the ‘wave of advance’ model created by L. Sforza-Cavalli and A. Ammerman.⁹ Genetic studies conducted by these authors showed a limited participation of hunter-gatherers’ genes in the genotype of later European populations. Therefore, it was concluded that the newcomers replaced the local population. Nevertheless, the results did not in fact provide any possible explanation as to what happened to the forager populations, how the process evolved and why it proved to be so enduring. Moreover, since the first heterogeneous finds from the Aegean and Balkan territories were included in research, it has been obvious that simple models cannot serve as a definitive explanation.

Findings from the north-eastern shores of the Mediterranean provided information on the coexistence of material culture belonging to groups of pottery-carrying agricultural communities and Mesolithic hunter-gatherers.¹⁰ As a result, the opinion on the postulated uniformity of the ‘Neolithisation process’ had to change. It seemed that the interactions were more complex than previously believed. Soon, new insights were gained from archaeological data (e.g. T-axes, geometric ornamentation and metatarsal chisels or cleavers found in the Brześć Kujawski group, as well as domestic cattle bones and stone axes with shaft holes in Ertebølle contexts)¹¹ and, in consequence, it became obvious how inadequate the previous colonisationist and diffusionist theories on the Neolithisation of local European communities had been.

No categorical ‘shift’ was observed. Moreover, archaeological materials indicated rather the coexistence, or even ‘cultural exchange’ between both groups. The best-known example is ‘The Whirlpool of Lapena’, commonly known as Lepenski Vir.¹² Motivated by the dual character of finds from this site (of both Mesolithic and Neolithic origin)¹³ and in search of local and non-local attributes, researchers examined more than five hundred individuals from cemeteries located nearby. Interestingly, these studies did not prove any drastic change in economic management, but revealed a subtle dietary transformation during the Mesolithic and Neolithic periods. While the Late Mesolithic subsistence was based on a fish-dominated diet, the newcomers were less dependent on aquatic resources. Findings from Lepenski Vir, along with other similar examples from different parts of Europe, proved that the transition may have been different from what was conventionally thought. However, apart from just a few attempts,¹⁴ its exact course has not been sufficiently explored so far.

Theories and models

Research on Neolithisation and the related social and cultural interactions that started with certain ‘colonisation’ theories, tied to G. Childe’s ‘Neolithic revolution’, remained in the mainstream of the cultural and historical approach. Given the lack of reasonable evidence for a rapid transition in Europe, the term was rephrased as ‘the process of Neolithisation’. Its geographical dimension also varied, as reflected by numerous scientific theories formulated to determine its character.¹⁵ However, to this day none of these approaches was fit to serve as the principal explanation. Certain regularities in this respect can be outlined from the Central European perspective. The Neolithisation process “began [there] during the latter half of the seventh millennium cal. BC, then experienced a major shift with the expansion of the Linear Pottery Culture” (LBK)¹⁶ and ended “within the 3rd millennium BC and the first half of the 2nd millennium BC”,¹⁷ when the last hunter-gatherers faded away among the Early Bronze Age groups or, as others prefer, when the third stage of Neolithisation occurred.¹⁸

Even if the principal subject under discussion has been elaborated in a number of theories, it has to be emphasised that the earliest of these, related to diffusionism,

⁹ Ammerman, Sforza-Cavalli 1984.

¹⁰ After Price 1983, 770.

¹¹ Bogucki 2008.

¹² See Srejić 1969; Borić *et al.* 2012.

¹³ See Borić 2007.

¹⁴ For instance Kozłowski, Nowak 2019.

¹⁵ For instance Clark, Haswell 1967; Lee, DeVore 1968; Binford 1968; Hodder 1990.

¹⁶ Gronenborn 2007, 73.

¹⁷ Nowak 2013, 11–12; 2019.

¹⁸ See Nowak 2019.

are most representative, such as the already mentioned 'wave of advance' model.¹⁹ Only as late as in the 1960s, the idea of diffusion changed to a more processual way of thinking, which was particularly related to a general shift in research methodology. Among others, it was marked by the appearance of the paleo-economic approach²⁰ and the population-resource imbalance model.²¹ The theories evolved into major demographic paradigms, which considered, for example, the idea of territorial nucleation²² or the 'packing model'.²³ The latter two indicate how population growth can ultimately reduce mobility and increase the exploitation of suboptimal resources. According to M. Zvelebil,²⁴ all of these theories (or models) were initially inspired by Testart's theory of complexity of hunter-gatherer communities.²⁵ This theory attempted to encompass the development of many techno-economic domains, including the large-scale storage of food, reduced residential mobility, increased population density, socio-economic differentiation, social division of labour, developed systems of exchange, warfare, as well as intensive ceremonial and social activities. More interestingly, from this moment onwards the original 'Neolithic' communities actually started to be seen as active participants in the process aptly called Neolithisation.

Despite the emergence of new concepts and differing research results, none of the above has ever enjoyed as much popularity as diffusionist theories. Their plausibility was even confirmed by genetic research a few years later.²⁶ The 'wave of advance' model or the migration theory received support from numerous scholars, including C. Renfrew,²⁷ who added a linguistic aspect to the discussion.²⁸ These and other quite similar theories gained the greatest popularity at that time. However, they did so not only because of their scientific rationale, but also out of the European ambition to have a noble genealogy, referred to by M. Zvelebil as 'farmers our ancestors'.²⁹ In the meantime, the state of the art of global archaeological research changed. As D. Gronenborn pointed out,³⁰ when American scientists agreed upon the migration theory, researchers in the United Kingdom followed post-processual archaeologists and, as a result, also adopted an 'indigenous' concept of Neolithisation.

In both cases, the LBK "played a major role" in changing Europe.³¹ At the same time, continental scientists had their own insights which resulted in a similar discussion regarding the migratory vs. indigenous character of the process. After years of discussion, "an intermediate scenario" was finally reached in all relevant cases.³²

New models of Neolithisation emerged in the 1980s. All of these were grouped around acculturation theories which implied the acceptance of the Neolithic lifestyle by local hunter-gatherer communities. This adaptation came after the spread of information on the attractive 'plant-animal package' which persuaded communities to acculturate to the new conditions.³³ The main paradigm was the so-called 'Neolithic package', the adaptation of which resulted in "a sedentary way of life, the first permanent villages, domesticated crops and animals, and the development of new skills, such as polished stone production and pottery".³⁴ The theory suggested that domesticated animals and plants were acquired via trade with the Neolithic population of the Near East, and subsequently through agriculturalists living in the Balkans and the Mediterranean area.³⁵ Even though this development was supported by archaeobotanical evidence, some scientists remained sceptical. Using climate change as an argument, they pointed to the possibility of a local Neolithic manifestation. It was suggested that the direct environment was also likely to have created favourable conditions for the initiation of such economic changes in Europe.³⁶ Additionally, a social perspective was suggested: A. Whittle claimed that adaptation to the new realities could have taken place thanks to contacts and certain unidentified interactions which were carried out in accordance with specific social ethics.³⁷ The latter are nowadays of particular interest and it seems that ethnographic research is capable of approximating them to a certain extent.

As already mentioned, the most popular approach of our times combines the migration theory and the indigenous concept. In one related model, referred to by M. Zvelebil as "integrationism",³⁸ the agricultural transition is regarded as a "selective colonisation by fairly small groups through mechanisms such as 'leapfrog colonisa-

¹⁹ Ammerman, Cavalli-Sforza 1984.

²⁰ Higgs, Jarman 1969.

²¹ Clark, Haswell 1967; Lee, DeVore 1968; Binford 1968.

²² See Newell 1984.

²³ Binford 1983.

²⁴ Zvelebil 1986a, 8–10.

²⁵ See Testart 1982.

²⁶ See Ammerman, Cavalli-Sforza 1984.

²⁷ Renfrew 2003, 328.

²⁸ Renfrew 1987, 142–152.

²⁹ Zvelebil 1995, 145–147; Divišová 2012, 141–142.

³⁰ Gronenborn 2007, 74.

³¹ Gronenborn 2007, 74.

³² Gronenborn 2007, 75.

³³ Divišová 2012, 141.

³⁴ Divišová 2012, 143.

³⁵ Divišová 2012, 143.

³⁶ Testart 1982; Gronenborn 2007, 77.

³⁷ Whittle 1996.

³⁸ Zvelebil 2002.

tion', frontier mobility, and contact".³⁹ In another approach, probably even more important from the perspective of the present paper, called the "availability model",⁴⁰ the role of Mesolithic communities was finally emphasised. The contacts between foragers and farmers started to be seen as taking place on the frontier rather than in the zone of ephemeral interactions. The availability model was divided into three phases: the availability phase, the substitution phase and the consolidation phase.⁴¹ Their distinction depended on the relationship between the incoming and indigenous populations which were examined in correlation with a particular region and the intensity of farming practices detected there. The phases were ordered "chronologically" according to the types of interaction and depended on the degree of advancement of mutual relations between farmers and hunter-gatherers. The assignment of relationships to specific phases was based on research on the conditions of stable cultural diversity, the external or internal cultural combinations and the general adaptation of the Neolithic means of subsistence. Once these models gained popularity, they were further developed.

Except for theories resulting from a reflection on the environmental and economic aspects, certain other approaches related to the change in social thinking were adopted.⁴² Their aim was to prove "the enormous significance of (non-verbal, non-literate) visuo-symbolic representation".⁴³ This understanding stemmed from the so-called historical actuality, based on the same principle as geological actuality.

However, despite the abundance of models proposed in the past, a new theoretical approach seems to be dominating today's discussion. Since it has been proven that the material and spiritual culture of the hunter-gatherers was substantial (see *The original affluent society* by Sahlins),⁴⁴ while at the same time their ways of subsistence have been declared sufficient, the idea of the Neolithisation of these communities started to be viewed from another perspective. It began to be presented rather as a process of acquiring or incorporating certain elements of the Neolithic package into the daily life habits of the hunter-gatherers and their beliefs.⁴⁵ This led to the implementation of further Neolithisation components such as "prestigious/cultic objects, architecture,

settlement organisation, and a new way of life".⁴⁶ Each of these components could have had a different impact on its observers, so the process of their acquisition could have been carried out differently in various places and not only as a consequence of a 'social disequilibrium', as proposed by M. Zvelebil.⁴⁷ A fine example of these processes is the so-called 'ceramic revolution' which explains how Neolithic innovation expanded in Eastern Europe.⁴⁸

Thus, recent theories and models on Neolithisation postulate a clear heterogeneity of the course of this process.⁴⁹ The same approach may also apply to the mutual interactions that might have taken place between indigenous hunter-gatherers and exogenous farmers and breeders.

Research areas and different approaches

It is somewhat trivial to say that the interactions between hunter-gatherers and groups of farmers and breeders are strongly linked to the process of Neolithisation, which started around 10,000 BC in the Near East, as a "revolutionary moment occurred, when hunter-gatherers began to focus on broad spectrum hunting and gathering (...) which implied the adoption of a more sedentary life".⁵⁰ Factors that influenced these interactions and helped them spread include climate change, demographic growth and the pressure that followed it. So much so that the theory on "over-exploitation by intensive hunter-harvesters who were (semi-)sedentary"⁵¹ has been recognised as an important impulse for agricultural proliferation. Some of these concepts were once rejected,⁵² some were temporarily restored,⁵³ and others were even entirely abandoned (like the term 'revolution' used in reference to the 'Neolithic'), but the debate on Neolithisation and the related topics has not been exhausted yet. Furthermore, it is still gaining both numerous scholars as well as new methods. Combined, these are set to answer the main questions concerning the causes, the course and the effects of the said process and the resulting contacts. Ever since material studies have been defined, they have provided the main evidence regarding these interactions.

Insights into the nature of the relations established between foreigners and agrarian/pastoral populations

³⁹ After Divišová 2012, 143.

⁴⁰ Zvelebil, Rowley-Conwy 1984; 1986.

⁴¹ Zvelebil 1986a, 10–13.

⁴² For instance Hodder 1990; Verhoven 2011; Watkins 2006.

⁴³ Watkins 2006, 82.

⁴⁴ Sahlins 1972.

⁴⁵ For instance Raemaekers 1999, 13–14.

⁴⁶ Mazurkevich, Dolbunova 2015, 13.

⁴⁷ Zvelebil 1986a, 10.

⁴⁸ Mazurkevich *et al.* 2006; Mazurkevich, Dolbunova 2015.

⁴⁹ Watkins 2006, 82–84; Mazurkevich, Dolbunova 2015; Nowak 2019.

⁵⁰ Flannery 1969; Watkins 2006, 74.

⁵¹ Watkins 2006, 74.

⁵² See Braidwood 1960.

⁵³ See Binford 1968; Flannery 1969; Aurenche *et al.* 2013.

come not only from previously mentioned Serbia,⁵⁴ but from all around Europe, including Germany, Denmark, Scandinavia⁵⁵ and Poland.⁵⁶ These examples are mainly related to the so-called “obvious” contacts, such as certain forms of trade, cultural exchange, or a simple chance meeting (as exemplified by the indicators of conflict found at the site of Jagodnjak in Croatia).⁵⁷ Similar contacts can be observed in later periods, in archaeological materials, ethnographic data or historical chronicles where, for instance, the contacts between the Roman Republic and the *Barbaricum* were recorded (see Julius Caesar and his *Gallic Wars*). A similar situation took place during the first interactions between the indigenous peoples of the New World and the European newcomers. These events were described on a number of occasions, but one is of particular interest. In 1524, an Italian explorer in the service of France, Giovanni da Verrazano, described the behaviour of the Narragansett community as very generous.⁵⁸ Another European discovery also resulted in a cultural exchange of economic character. In the first half of the 16th century, Portuguese explorers reached Japan. Initially, some ‘exotic’ items, such as glass, eyeglasses, hourglasses, wine and other curiosities were exchanged. Soon, the European ‘gadgets’ were associated with prestige and became fashionable so that every nobleman had at least one such item in his collection. Afterwards, Portuguese traders began to sell firearms of their production called *harquebus*.⁵⁹ As a consequence, the Japanese soon started to produce their own equivalents called *tanegashima* guns.⁶⁰ These differed in terms of shape but served the same purpose. Even if this situation is not quite identical to the Neolithic because of its economic and political character, it can serve as a good example of the impact of trade contacts on local needs; for instance, as a certain analogy to (or metaphor for) the idea of ‘ceramisation’ of the first Mesolithic communities. From all of the available elements in the Neolithic package, they chose pottery. From this moment on, ceramics started to be incorporated on a larger scale in their daily life. Even if for different reasons, the behaviouristic approach was adopted in a similar manner. The chosen element was an expression of an internal need, not an effect of external pressure.

Another stage of the interactions in question will now be discussed: the incorporation, adaptation or emulation of ideas and stylistic attributes. The best sphere for such investigations is pottery which, according to Prudence Rice,⁶¹ can be seen as a mental template with enormous significance for investigating the origin of its producers and owners. An interesting illustration of this type of approach is provided by research conducted in north-eastern Poland. For a long time (until the mid-2nd millennium BC), this area remained a dominion of hunter-gatherer communities. Although they incorporated certain Neolithic elements (such as pottery), they were economically committed to the Mesolithic tradition. Nevertheless, at the end of the Neolithic period, certain processes of cultural diffusion can be traced. Interestingly, some researchers consider these as the third stage of Neolithisation.⁶² The question of whether this was actually the case is up for debate. However, it can undoubtedly be said that for this territory (and its inhabitants), these processes were the beginning of serious cultural and social changes. A fine example is Site X in Ząbie, where a huge and heterogeneous assemblage of pottery was discovered.⁶³ There were parts of vessels of diverse archaeological origins, related to the Globular Amphora culture, Rzucewo culture, Corded Ware culture, Iwno culture, Bell Beaker phenomenon, Trzciniac cultural sphere (known as the Trzciniac Cultural Circle⁶⁴) and one that could be classified as the Neman cultural sphere (known as the Neman Cultural Circle).⁶⁵ The discovered potsherds showed diverse characteristics. Except for a big number of homogenous fragments of pottery bearing attributes of only one archaeological culture, those displaying a mixture of features of different origins predominated. This was especially apparent in the ornamentation since it combined motifs of the local Neman cultural sphere (an ornamented edge of the pot and characteristic ‘pits’) with, for example, patterns typical of the foreign Globular Amphora culture or the Corded Ware culture.⁶⁶ The amount of diagnostic potsherds was sufficiently large to make the overall interpretation of the site challenging: in contrast to the significant number of fragments of rims, only a few bottoms were found. However, these materials confirmed the complexity of

⁵⁴ Borić 2007.

⁵⁵ After Bogucki 2008.

⁵⁶ Czekaj-Zastawny *et al.* 2011; Czekaj-Zastawny 2015; Nowak 2019, 109.

⁵⁷ Oral information in the paper of Marko Novak *et al.* on “violent Neolithisation” at the site in Jagodnjak in Croatia, presented during the 7th edition of the “Homines, Funera, Astra” conference in Alba Iulia in 2019.

⁵⁸ See Greene 1872, 13.

⁵⁹ Greń 2010, 19–20.

⁶⁰ Lidin 2003; Greń 2010, 19–20.

⁶¹ Rice 1987, 283–284.

⁶² For instance Nowak 2019.

⁶³ See Manasterski 2009; 2016.

⁶⁴ Makarowicz 2010.

⁶⁵ *Sensu* Manasterski 2016.

⁶⁶ Manasterski 2009, figs 2–3.

relations between local pottery-carrying hunter-gatherer communities and agricultural and pastoral societies foreign to this territory. The most probable reason for this kind of admixture was increased contact, perhaps resulting from intermarriages or at least a lively exchange and transfer of knowledge and technology. For this reason, these findings have been added to the inventory of a separate Ząbie-Szestno complex.⁶⁷ Nevertheless, archaeological material from the Masurian Lake District indicates more direct and conscious contacts, which, in fact, were already confirmed by genetic studies.⁶⁸ The results show a mixed genetic component of Mesolithic and Neolithic origin, which only reinforces similar theories. Examples also come from Kuyavia (Poland); however, as proven by Daniel M. Fernandes *et al.*,⁶⁹ the evidence was “certainly composed of the same genetic component present [also] among Anatolian and LBK Early Neolithic farmers”.⁷⁰ Still, this does not exclude contacts, but only indicates that they may have taken place long before the arrival of Neolithic societies on the territory of modern-day Wielkopolska.

Even if the presented evidence for contacts is not as accurate and direct as genetic studies, their existence cannot be excluded. This was thoroughly proven by B. Vanmontfort who studied the frequency of microlithic artefacts in relation to the penetration of the loess zones traditionally seen as the dominion of Neolithic communities.⁷¹ Also, although material data is limited, genetic research backs up such possibilities.

The examples mentioned above proved to provide irrefutable evidence for direct interactions between both groups. At least three different forms of direct interactions can be distinguished:

- I. Exchange. The matter of exchange could have been related to particular items, such as generous gifts or ‘trade’ objects.⁷²
- II. Adaptation/Emulation. The matter of adaptation/emulation could have been related to the incorporation of ideas, technologies, stylistics, or to the morphological syncretisation of manufactured products.
- III. Interbreeding/Intermarriages. Direct relations between particular individuals of both groups.

It is very important to point out that the interactions mentioned above are divided in terms of forms, not phases as suggested by Zvelebil.⁷³ The cause of these contacts is related to their specific characteristics which allow them to occur simultaneously. The exchange of objects, as well as the adaptation, borrowing or emulation of ide-

as can take place at the same time. The reasons for this are numerous: after getting a gift, the recipient could try to copy it in its entirety or just its particular elements. Also, marriages could take place at the same time as the previously mentioned activities, which situates this whole hypothetical group in the first phase according to Zvelebil and Rowley-Conwy, namely ‘availability’. This should be investigated as a priority not only in the case of the interactions themselves, but also as far as the drivers behind the European Neolithisation are concerned.

***There are as many approaches,
as there are people writing –
instead of a conclusion***

Paraphrasing Marek Zvelebil,⁷⁴ we should be aware that although these words come from 35 years ago, they are still applicable today. Numerous discussions and many papers investigating the problem of the Neolithic transition and consequently, the relations of foragers and farmers/breeders are cases in point. It is difficult to find one adequate model, or a single approach to answer all the questions. Regarding the entire set of available data and the plurality of theories, the Neolithic of the temperate zones of Europe (and Asia) should be seen as a period when communities with different economies based on general productivity functioned in parallel. Thus, this productivity does not solely apply to the farming and breeding conditions, but implies an intentional and ‘conscious’ use of the natural environment for particular economic reasons. Moreover, the economic specialisation of the hunters, gatherers, and fishermen as well as their overall role in the transformation of Europe should no longer be underestimated. This approach could be the answer to questions on the observed acceptance of the new model of life and the final transition from foraging towards farming and breeding. Even if the concept is not yet thoroughly developed, it already fills the gap between the initial process and the final acculturation of both groups. Available data originates in all parts of the world and highlights different models of Neolithisation and the various elements of its package. Therefore, one definition is not enough. Although it is difficult to capture this evolution by reviewing archaeological material, the idea deserves further examination and the significance of hunters and gatherers in the transition has to be emphasised.

⁶⁷ Manasterski 2009, 119–133.

⁶⁸ Borić *et al.* 2012; Chandler *et al.* 2005; González-Fortes *et al.* 2017.

⁶⁹ Fernandes *et al.* 2018.

⁷⁰ Nowak 2019, 109.

⁷¹ Vanmontfort 2008.

⁷² See Zvelebil 2001, figs 5–6.

⁷³ Zvelebil, Rowley-Conwy 1984; Zvelebil 1986a, 1986b.

⁷⁴ Zvelebil 1986a, 8.

In short, having analysed the objects made in hunter-gatherer communities, one simply cannot doubt that they were sufficiently developed for a more 'conscious' productive economy. However, not only artefacts, but also the results of archaeometric research and theoretical deliberations provide us with premises to develop this idea. Thanks to the emergence of the latter, the perception of European Neolithisation has already changed. One can only wonder how much is still ahead with the development of technology, research methodology, and the emergence of new archaeological records.

Evidence from all of the presented research areas shows different networks that were formed between hunter-gatherers and groups of farmers and breeders. However, until today, more daring scientific voices have appeared only sporadically. Nevertheless, the interactionist approach has gained some popularity.⁷⁵ Today, the idea of hunter-gatherers acting as a prelude in the Neolithic has become widely accepted and the role of foragers has finally been acknowledged. Moreover, there are more and more voices in favour of theories suggesting Neolithic development on a local basis. Indigenous European communities could achieve the same cognitive and cultural facilities that their Southwest Asian neighbours had developed only a few centuries earlier.⁷⁶ This explanation could help to understand why the process of Neolithisation succeeded in a given area, but this reasoning leads to the question of inevitability. Was it necessary?

It is possible that the hunter-gatherers could eventually have reached the same level of advancement without any external influences. Would their approach have been different and could this predestined achievement have made them assimilate with the newcomers? Is the 'wave of advance' model still valid? It has to be mentioned that the changes that came about with Neolithisation could not have taken place without the skills and overall development of the hunters and gatherers. This fact has been emphasised more than once, especially by G. Clark, who highlighted the pivotal role of the Mesolithic in the development of later periods and cultures in Eurasia.⁷⁷ The character of these transformations and their consequences depended on specific, local preferences. Clearly, it would be a mistake to define them only from an economic perspective.

As Marek Zvelebil mentioned 35 years ago, the temperate zones had much to offer, including attractive living conditions and a wide range of economic options which should be considered.⁷⁸ It is no wonder that there are so many different forms of the Neolithic, from its classic variant to modifications based on an admixture of different hunting, gathering and fishing strategies. Therefore, the question is not if there were any contacts or interactions, but what forms of these can be distinguished. The answer is connected to the ultimate question of Eurasian Neolithic archaeology: why (or if) the process of transformation finally succeeded and what caused it to stop.

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⁷⁵ See Kozłowski, Nowak 2019.

⁷⁶ Watkins 2006, 84.

⁷⁷ Clark 1980, 7.

⁷⁸ Zvelebil 1986a, 5.

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EARLY AND MIDDLE HOLOCENE ANTLER TOOLS WITH HOLES
FROM THE GRAVEL PITS OF THE SMARHON AREA, NORTH-WESTERN BELARUS¹

ABSTRACT

The present article focuses on artefacts made of antlers with holes drilled for the haft, both those available in physical collections and those known only from archaeological literature. This category of items is held by a number of central and regional museums in Belarus, as well as in private collections. Such 'dispersion' of the items makes their study problematic. Until now, no comprehensive study of antler artefacts with drilled holes from gravel pits located in Smarhon has been conducted. Publications have so far considered only the specimens that are most representative from the point of view of

comparative typology. Michal Chernyavskiy and Piotr Kalinovskiy invariably associated tools with drilled holes with the Mesolithic period. However, this group of tools is more diverse and chronologically complicated than previously thought.

The authors of the present article propose a new typological scheme for this item category which is part of a pan-European cultural and chronological context based on a complex analysis of antler artefacts with drilled holes.

Keywords: Early and Middle Holocene, antler, red deer, elk, technology, typology, north-western Belarus

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rivers interfluvium: processing techniques, function, cultural and chronological identification'.

1. History of discovery and archaeological context

The faunistic complex found in the Smarhon gravel pits (north-western Belarus) is the largest in the territory of western Belarus and quite well-represented in scholarly literature.² To date, more than seven thousand mammal bones were found at the location, some of which bear traces of processing and are represented by whole instruments.³

The Smarhon findspot is located to the south-east of Smarhon city (Hrodna region) on the left bank of the Vilija river (right-bank tributary of the Neman river), in the area of the villages of Michnievichy, Belaja and Klidzianiaty, where three large pits for the extraction of a sand-gravel mixture are now located (Fig. 1). The first bone and antler artefacts were discovered in the summer of 1971, in a pit near the village of Michnievichy.⁴ According to P. F. Kalinovskiy, the archeozoological findings were confined to the gravel deposits, the depth of which is ca. 13 metres at this site.⁵ Tools with drilled holes were also present among the discovered artefacts. The

unearthing of material from the pits near Michnievichy continued between the 1970s and 1990s, until the quarrying stopped. Today, more than one hundred bone and antler artefacts, as well as individual flint items are known from the site at the village of Michnievichy.

The gravel pit located near the village of Klidzianiaty began to be developed in the early 2000s which means it is relatively new. Moreover, it still occupies a fairly small area (Fig. 1). In 2013, several antler artefacts with drilled holes were identified in sediments in the southern part of the pit.⁶ One of the clean-ups carried out at the artefact findspot revealed a thick layer of buried sapropel at a depth of three metres, in which remains of wood were recorded.⁷ Perhaps the antler finds should be associated with this particular layer. Taking into account the active development of the pit, it is quite possible that the number of bone and antler artefacts from this location will further increase in the future.

In the materials from the Michnievichy and Klidzianiaty pits, thirty tools with drilled holes and one preform for this type of item were identified. The collection also includes technologically determinable post-production waste related to drilled tools (9 examples).

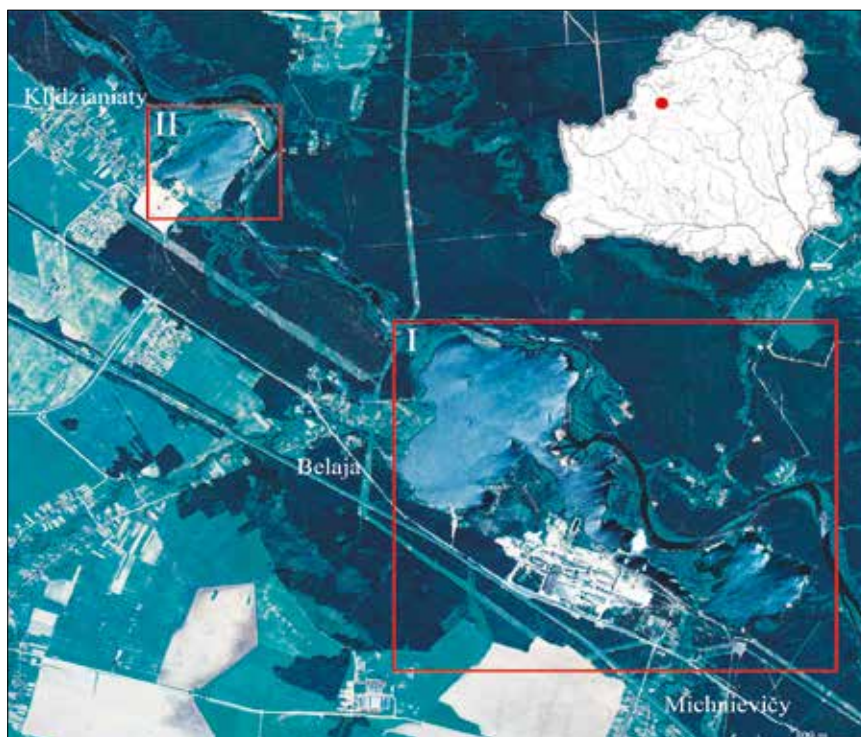


Fig. 1. Map of the Smarhon area with the Michnievichy and Klidzianiaty gravel pits.

² Kalinovskiy 1983, 36–39; 1995, 47–57; 1999, 36–41; Chernyavskiy, Kalinovskiy 1972, 26–32.

³ Kalinovskiy 1995, 47–57; Chernyavskiy, Kalinovskiy 1972, 26–32; Chernyavskiy 1992, 116–120; 2006, 5–10.

⁴ Chernyavskiy, Kalinovskiy 1972.

⁵ Kalinovskiy 1983, 37.

⁶ Chernyavskiy 2015.

2. Research methodology

2.1. Use-wear analysis

The technical and functional study of the antler items with drilled holes from the Smarhon findspot is based on the method of experimental traceology as applied to archaeological artefacts.⁸

The use-wear analysis of the material was performed with an MBS-9 binocular microscope (indirect lighting, magnification up to 98 times) and Olympus metallographic microscope (built-in lighting, magnification up to 500 times). Multifocal photofixation of traces of production and use was performed with the help of the CANON EOS Utility program, with further processing of frames in the Helicon Focus 5.2 program.

Due to the specific conditions of occurrence, detection, extraction, and further storage of archaeological materials from the Smarhon gravel pits, the preservation of antler items is, in most cases, poor. Mainly, there was a significant loss of the original surface of the items most exposed to external natural factors. Consequently, the features necessary for use-wear analysis such as macro- and micro-traces of manufacture disappeared. We have at our disposal only one antler object with a hole on the working end on which traces of use are preserved satisfactorily enough to enable microanalysis; this issue will be discussed in more detail later. However, macro marks such as the partially or completely preserved shape of the items, together with functional elements such as working blades, drilled and cut holes, hollows, or specially formed ends, have allowed us to establish the type of raw material and the technology used for preforms made from various parts, as well as the techniques of their secondary treatment.

2.2. Typology

Red deer antler items with a drilled hole are widely distributed geographically and temporally. At different times, different researchers have put forward typological schemes aimed at generalising and organising the available material. For example, mattocks made of red deer antlers from sites in northern Belgium were divided into five main types and nine subtypes.⁹ The typology is based on the choice of a particular part of the deer antler (basal, medial, or distal – crown) and the location of the drilled hole. Similar features (the part of the antler and the location of the hole) have been used to create a typology

of red deer antler mattocks from settlements in Great Britain, among which the so-called ‘unbalanced’ type of mattock is particularly notable, where the drilled hole is offset to the end part of the item.¹⁰ Also noteworthy are the regional typologies developed for the finds from the Baltic coast in north-western Poland.¹¹ The principles used for this typology are similar to those used for classifying products with drilled holes from Belgium and the UK, in addition to the use of a combination of ‘morphological’ and ‘functional’ components in the names of types.

Items made of elk antler with drilled holes have not yet been subjected to any dedicated analysis as they are relatively few in number and do not have any clear type-forming features. For example, in the catalogue of bone and antler artefacts from the Lubana valley in eastern Latvia, all tools with holes made of elk antler and red deer antler were assigned to a single group of “antler axes and peaks with drilled holes”, without any further division into types of antler raw materials.¹²

Judging from the results of the use-wear analysis of materials from the Smarhon pits, as well as taking into account the typological developments made for Western and Northern Europe, we offer our own typology of antler artefacts with drilled holes made of both red deer and elk antlers which is applicable to the territory of Belarus and Eastern Europe as a whole.

The scheme we propose is based on several characteristics (Table 1). The initial differentiation of the materials was based on the choice of raw material (I – *Cervus elaphus*; II – *Alces alces*). Further division is based on the choice of a certain part of the antler which served as a preform for the final implement (A – basal part; B – medial part; C – distal part; D – tines). Due to the specific nature of elk antler as raw material, two additional groups have been defined for it (AB – basal part passing into medial part; E – items with highly modified surfaces and/or ornamentation).

Depending on the location of the drilled hole, four groups were identified: 1 – frontal, centred; 2 – frontal, offset to one end of the preform; 3 – side, centred; 4 – side, offset to one end of the preform. Four variants of design and orientation of the working end of the item were also highlighted: a – hollow for inserting a stone or antler tool; b – blade oriented perpendicular to the attachment of the handle; c – blade parallel to the attachment of the handle; d (technical version) – missing working end. It is important to note that we are looking at the position of the antler tool and its handle in their

⁷ Chernyavskiy 2015, 6–7.

⁸ Semenov 1957; Peltier, Plisson 1986.

⁹ Hurt 1982.

¹⁰ Smith 1989.





¹¹ Ilkiewicz 2009/2010.

¹² Vankina 1999, 262–263.

Table 1. Typological classification of antler tools with holes. Key: 1 – raw material; A–C – antler parts (preforms); 1–4 – position of the hole (1 – frontally centred, 2 – frontal offset, 3 – lateral offset, 4 – laterally centred); a–d – position of the working end (a – hollow for inserting a stone or antler tool, b – blade is oriented perpendicularly towards the attachment of the handle, c – blade is oriented in parallel to the attachment of the handle, d (technical version) – missing working end.

I (<i>Cervus elaphus</i>)																
A (basal part)				B (medial part)				C (distal part)				D (tines)				
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
a																
b																
c																
d																

Table 1. Typological classification of antler tools with holes (continued).

II (<i>Alces alces</i>)																	
A (basal part)					B (medial part)				AB (basal part passing into medial part)				E (items with highly modified surfaces and/or ornamentation)				
1	2	3	4		1	2	3	4	1	2	3	4	1	2	3	4	
a																	
b																	
c																	
d																	

longitudinal plane. In contrast to the above-mentioned developments in other parts of Europe, our scheme may also be applicable to elk antler and can accommodate other antler products, the division of which may be based on the principle of raw material selection, preform orientation, and working blade arrangement.

Another difference in our typology is that we avoided using common terms that imply a precisely-defined scope and method of use (mattocks, picks, axes, adzes). During its 'life', an antler tool could go through a whole series of modifications as a result of the recycling process. Due to breakage, the dulling of the working blade, or complete unsuitability for its original function, the item could have been completely or partially modified. These actions may have resulted in a change in the functional purpose of the antler blade and thus in its 'functional' type (e.g. axe → sleeve; mattock ↔ axe, etc.). Among the findings from the Smarhon quarries were items which had undergone several stages of modification, most likely resulting in a change of function (Type I.A.2, 3b; Table 1). In cases where the items showed signs of use, we gave the tools a functional definition.

3. Chronology

When referring to the results of recent studies on the attribution of perforated antler tools from north-western European material, it is worth mentioning a generalising study of their relative chronology¹³ as well as several works on radiocarbon dating of bone and antler artefacts.¹⁴ According to these studies, antler tools with drilled holes can be attributed to the Early and Late Mesolithic, as well as the Early Neolithic.

M. M. Charniauski and P. F. Kalinovskiy have linked perforated tools with drilled holes with the Mesolithic period.¹⁵ However, as it becomes apparent now, the Smarhon complex is chronologically more complicated and diverse.¹⁶ In the nearest future, the initiated research will allow to obtain direct dating of selected finds from the collection, which will more accurately determine the existence of certain types of tools in the context of the site and the region as a whole.

4. Smarhon area. Choice of raw material

Elk antler (*Alces alces L.*) (n=7) and red deer antler (*Cervus elaphus*) (n=23) were used as materials for manufacturing the analysed items. Adult elk antlers consist

of three parts: the main rod, the shovel, and a number of sharp tines (brow, bez and crown). At the base of the rod is a thickened bumpy ring – a socket. The length of the rod usually varies from 10 to 20 centimetres and its coverage, from 17 to 35 centimetres. Its section has an irregularly-rounded or slightly flattened shape. Its surface is covered by longitudinal grooves. The end of an elk antler rod expands into a slightly concave top shovel, studded on the front and outside edges with a number of sharp tines. The number of tines on antlers depends on the age of the animal and can reach up to twelve or thirteen. The structure of elk antlers is also distinguished into the front part, the back part, the palmation, and the posterior tine.¹⁷ The antler of a red deer differs from the elk antler in shape, size and structure. Its structure also includes a main rod with a base in the form of a socket. A new tine (brow, bez, trez [third], terminal and crown) grows from the rod as the animal matures. The antler of a red deer also has a front and a back part, but there is no palmation and no posterior tine. Knowledge of these antler elements allows to determine the species even from small fragments. More schematically, in order to create convenient typological schemes, elk and red deer antlers are also divided into basal, medial and distal parts.¹⁸

During growth, the soft spongy tissue of the antlers is mineralized, i.e. the amount of the main element – calcium – increases. The cancellous bone contains bone-forming cells which deposit bone-forming lime on the frame.¹⁹ The elk antler differs from the red deer antler not only in shape but also in inner structure: the elk antler has a thicker outer layer while the layer of the internal spongy material is thin, which is greatly reflected in its resistance to impact and fracture loads.

The structure of the red deer antler is such that it can be used almost entirely for a large number of *standardised* implements.²⁰ The selected area or antler fragment may be said to determine the morphometry of future products. The choice of antler fragment will determine the processing technology and, apparently, even the functional specification of the finished instrument. The situation is different with items made of elk antler, where, as a rule, the shovel (palmation along with the front and back parts) – a large and relatively flat part of the antler whose size, shape and relief will always be different – was used as a basis. Consequently, despite the tradition of making such tools with specific technological and functional parameters in mind (dedicated working and end parts, fixation of the handle by means of a hole), each of

¹³ Pratsch 2011.

¹⁴ Crombe *et al.* 1999; Meadows *et al.* 2019.

¹⁵ Chernyavskiy, Kalinovskiy 1972.

¹⁶ Kalinovskiy, Kavalyukh 1997.

¹⁷ Schmidt 1972, 89, fig. 74.

¹⁸ Hurt 1982; Smith 1989; Elliott 2012, 42, fig. 16.

¹⁹ Schmidt 1972.

²⁰ Louwe Kooijmans *et al.* 2001, fig. 10.6.

these products is different in its own way.²¹ We believe that this determines the peculiarities of the selection and subsequent processing of raw materials from elk or red deer antler.

5. Characteristics of the artefact types

I. A. 1. a. The basal fragment of the antler rod was used as a preform for this type of instruments (n=1) (Fig. 2; Table 1). The protrusions of the socket rings were chopped off. A concentric groove was cut or notched out along the brow tine and the antler rod (there were no traces of this), which was then used to remove excess fragments. The location of the hole is frontal and centred. From the shape of the hole with straight, even walls we can conclude that the drilling was mechanical. The absence of drilling marks in the hole itself does not allow to determine the exact material (stone or bone) that was used to drill. On the rod side, the spongy substance was pushed out to create a cavity for inserting a stone or antler tool, which allows us to characterise this artefact as a sleeve. Artefacts of this type are known from the territories of Poland²² and northern Germany.²³ One of the examples from Poland has an insert made of a wild boar tusk.

I. A. 2.-3. b. An instrument made of a red deer antler is also represented by a single example (n=1) (Fig. 3: 3; Table 1), which is similar to the type described above in its main distinctive features. The only differential characteristics are two holes – front and side – which are closer (offset) to the antler rod socket. The removed spongy substance of the antler at the opposite end, just as in the first case, suggests the fixation of a stone or antler instrument there. The presence of two holes indicates a possible change in the function of the tool during its lifespan. At the moment, the authors of this article are not aware of similar products with two holes.

I. A. 2. b. The next type of artefacts includes an instrument (n=1) made from the basal part of a red deer antler (Fig. 4.1, Table 1) with a frontal, mechanically drilled hole, offset towards the antler socket. In this case, both brow and bez tines had to be separated. The antler rod was separated at an angle, which made it easier to sharpen the future working blade. The working blade of the item is oriented perpendicularly to the handle attach-

ment. Similar items (pick or adze) are known from sites in the Netherlands,²⁴ northern Germany,²⁵ Denmark,²⁶ Poland²⁷ and Lithuania.²⁸

I. A. 2. d. Another item (n=1) is made from the basal part of a red deer antler (Fig. 4.2, Table 1). The hole is located in the frontal position with an offset towards the antler socket. The bez tine is absent which indicates that the individual was young. The brow tine was removed in a standard way (sawn off or chopped off). Unfortunately, the working edge is absent, which makes it difficult to classify the object by the blade orientation. A similar artefact with a preserved horizontally oriented blade and ornamented surface is known from the territory of Denmark.²⁹

I. B. 1. a. One tool (n=1) with a frontal, centred hole (Fig. 3.2, Table 1) has been identified among the items for which the medial part of the red deer antler was used as a preform. The third tine is separated almost at the level of the antler rod. Both ends are sawn off or chopped off straight. There are no traces of removing the sponge mass of the antler at either end of the piece. The authors of this article are not aware of similar artefacts at the moment.

I. B. 2. a. Another object (n=1) is made of the medial part of a red deer antler (Fig. 5, Table 1). This item's distinctive feature is the location of the drilled hole in the front, but with an offset towards one end. The third tine is chopped off just below the antler rod. Both ends are separated at right angles. There are no traces of removing the sponge mass of the antler. On the end farther from the hole there is a large chipping, apparently associated with use. Artefacts of this type are known from the territory of the UK.³⁰

I. B. 2. b. Another type of instrument (n=2), made from the medial part of a red deer antler (Figs 6.1,3; 7.1.a,b, Table 1), differs from the rest of the objects by its good surface preservation. The distinctive features include the frontal location of the hole, which is offset towards one end. The working blade is oriented perpendicularly to the attachment of the handle. The third tine is left at about a third of its length, which was probably a technological necessity required for better fixation of the tool. The bevelled working blade clearly shows traces of planing left by the sharpening (or resharpening) of the blade. Overlaying the planing marks, there is wear from use: intensive hammering of the sponge mass and the

²¹ For example, see Clark 1954 or Louwe Kooijmans 1970, figs 18, 19.

²² Okulicz 1973, 45, fig. 17.1e; Pratsch 2006, taf. 8.1; Ilkiewicz 2009/2010, 26, 27, fig. 6.5; Bagniewski 1990, photo 18.

²³ Pratsch 2011, fig. 5.3.

²⁴ Louwe Kooijmans 1970, 59, 60, fig. 17.

²⁵ Groß *et al.* 2019, 105, plate 8.ID1461, 107, plate 10.ID2112; Płonka 2003, 495, fig. 168.1.

²⁶ Płonka 2003, 443, fig. 116.

²⁷ Kabaciński *et al.* 2008, 257, 258: figs 7, 8.

²⁸ Rimantienė 1971, fig. 145.1,2.

²⁹ Płonka 2003, 490, fig. 163.

³⁰ Elliott 2015, fig. 6.92.244H.

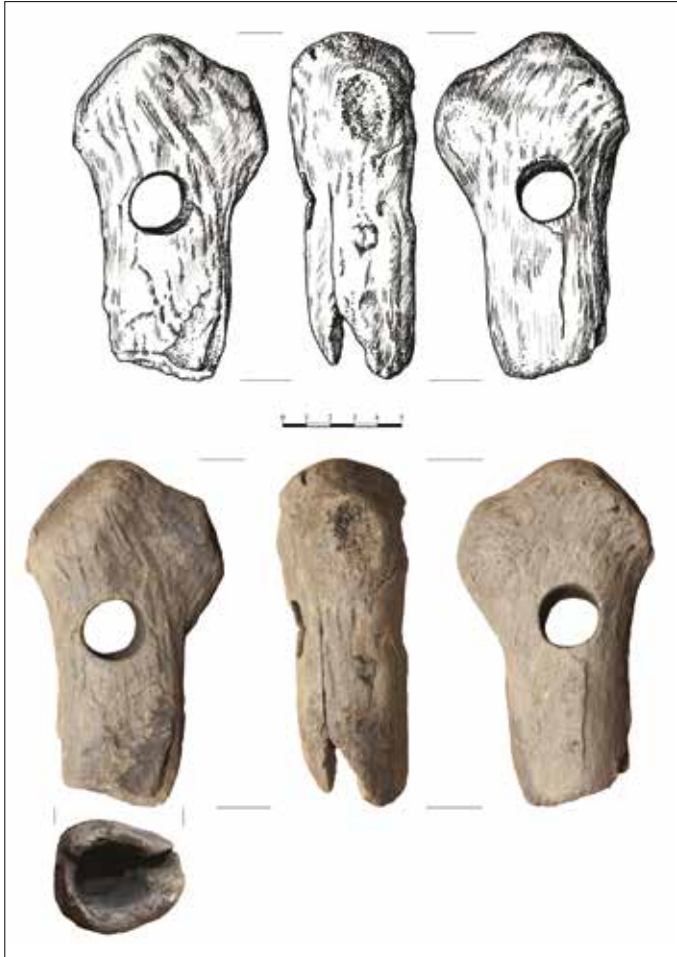


Fig. 2. Smarhon area. Klidzianiaty. Red deer antler tool with a hole. Type I. A. 1. a. (drawing by V. Petrushenka; photo by M. Chernyavskiy).

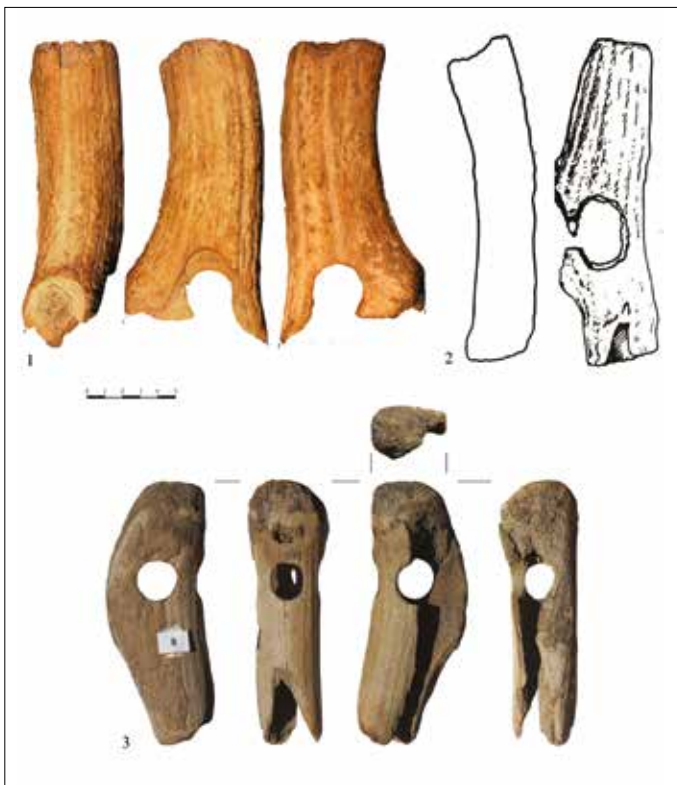


Fig. 3. Smarhon area. Michnievichy. Red deer antler tools with holes. 1 – Type I. B. 2. d.; 2 – Type I. B. 1. a.; 3 – Type I. A. 2.-3. b. (drawings by M. Chernyavskiy (Chernyavskiy 1992); photos by A. Vashanau, A. Malyutina and M. Tkachova).

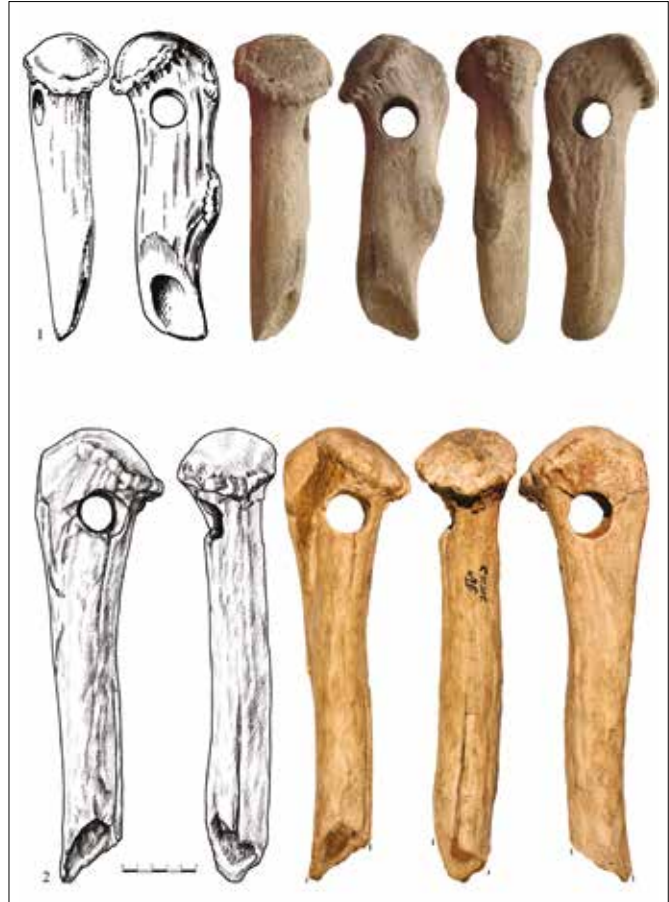


Fig. 4. Smarhon area. Michnievichy. Red deer antler tools with holes. 1 – Type I. A. 2. b.; 2 – Type I. A. 2. d. (drawings by M. Chernyavskiy (Chernyavskiy 1992) – 1, V. Petrushenka – 2; photos by N. Kiziukievich – 1, A. Vashanau, A. Malyutina and M. Tkachova – 2).



Fig. 5. Smarhon area. Klidzianiaty. Red deer antler tool with a hole. Type I. B. 2. a. (drawing by V. Petrushenka; photo by M. Chernyavskiy).

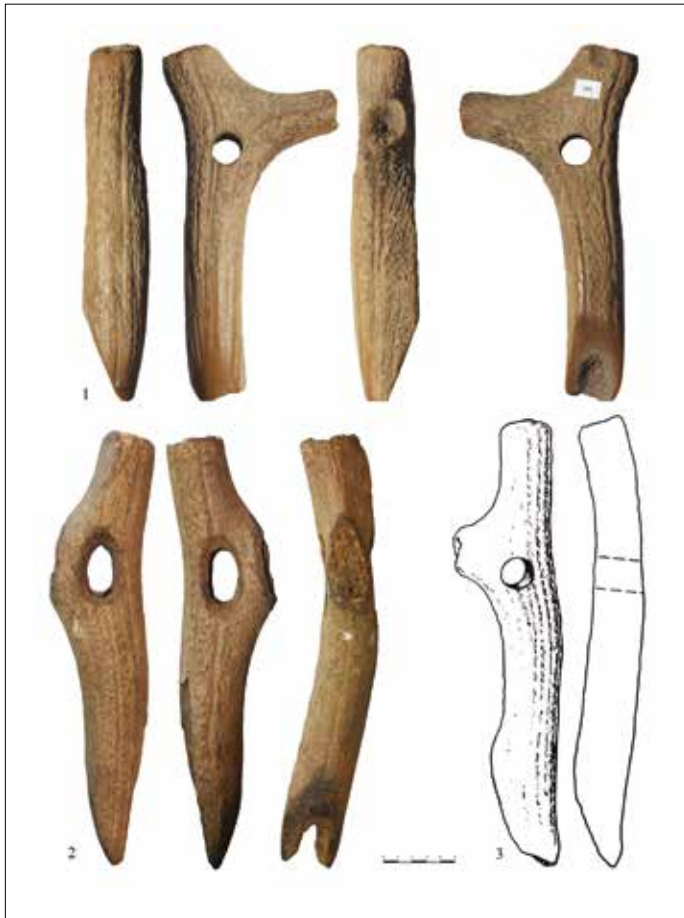


Fig. 6. Smarhon area. Michnievichy. Red deer antler tools with holes. 1 – Type I. B. 2. b.; 2, 3 – Type I. B. 2. c. (drawings by M. Chernyavskiy (Chernyavskiy 1992); photos by A. Vashanau and M. Tkachova).

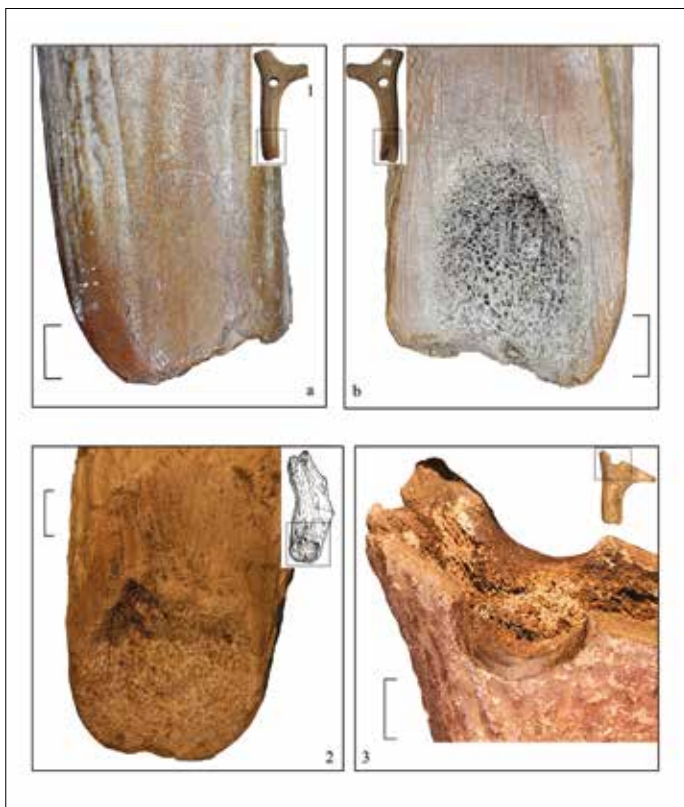


Fig. 7. Smarhon area. Michnievichy. Red deer antler tools with holes. 1: a, b – Type I. B. 2. b. Macro photograph of traces of use; 2 – Type I. B. 4. c. Macro photograph of working edge; 3 – Type I. B. 2. d. Macro photograph of the hole with non-utilitarian traces of use (photo by A. Malyutina).

outer antler layer, large flakes on both planes of the blade, numerous large linear traces moving away from the blade edge, dense intensive polishing of protruding surface areas (Fig. 7.1.a,b). The asymmetry of the working end and the central maximum reduction of the blade edge caused by the usage of the tool are clearly visible. The character of the traces evidently points to a long use for work with hard materials (according to the experimental observations of this article's authors, such macro wear of the working blade occurs when cutting hard wood; the bevelled blade is placed upwards during work). In addition to the exploitation wear, traces of wear on the tool were recorded on the surface of the hole on all its sides, on the protruding sections of the end, which is associated with friction from the attachment of the tool in the handle. A similar item is known only from a publication.³¹

I. B. 2. c. The following type of item (n=1), made from the medial part of a red deer antler rod, differs from the previous type by the location of the working blade (Fig. 6.2, Table 1). A cut (not drilled) oblong hole positioned frontally is offset towards one end of the item. The third tine is chopped off almost at the level of the antler rod. The working end, asymmetrically bevelled, is parallel to the attachment of the handle. Another artefact of this type is known from the territory of the UK.³²

I. B. 2. d. This type of artefacts includes fragmented items (Figs 3.1; 8, Table 1) (n=3). Distinctive features include the choice of the preform (medial part of a red deer antler rod) and the frontal location of the hole with a (likely) offset of its position closer to one end. On the surface of one fragmented piece, clear traces of hole drilling remained (Fig. 7.3) which were heavily smoothed by wear (as a result of the tool's attachment). Significant fragmentation of the item makes it difficult to find analogies for this artefact.

I. B. 4. c. The most numerous type of red deer antler tools discovered during the exploration of the Smarhon pit (n=7) (Figs 9–13, Table 1). Together with the finished tools of this type, we have at our disposal a considerable amount of waste from their production in the form of fragments of basal parts of the antler and rods with crowns (Figs 14–16). This allows us to reconstruct the technology of their production quite accurately. Thus, closer to the socket, on one side of the rod, a groove was cut which reached the spongy substance of the antler, and then the basal part of the antler was broken off. On the opposite end, a ring groove was chopped or sawn, along which the rod with the crown were removed. The third, central tine was sawn off or chopped off along the groove. The hole was then cut through it. Before drilling, the side



Fig. 8. Smarhon area. Michnievichy. Fragments of red deer antler tools with holes. Type I. B. 2. d. (photo by A. Malyutina, M. Tkachova).

³¹ Chernyavskiy, Kalinovskiy 1972, fig. 6.3.

³² Elliott 2015, fig. 4.60.176.299.

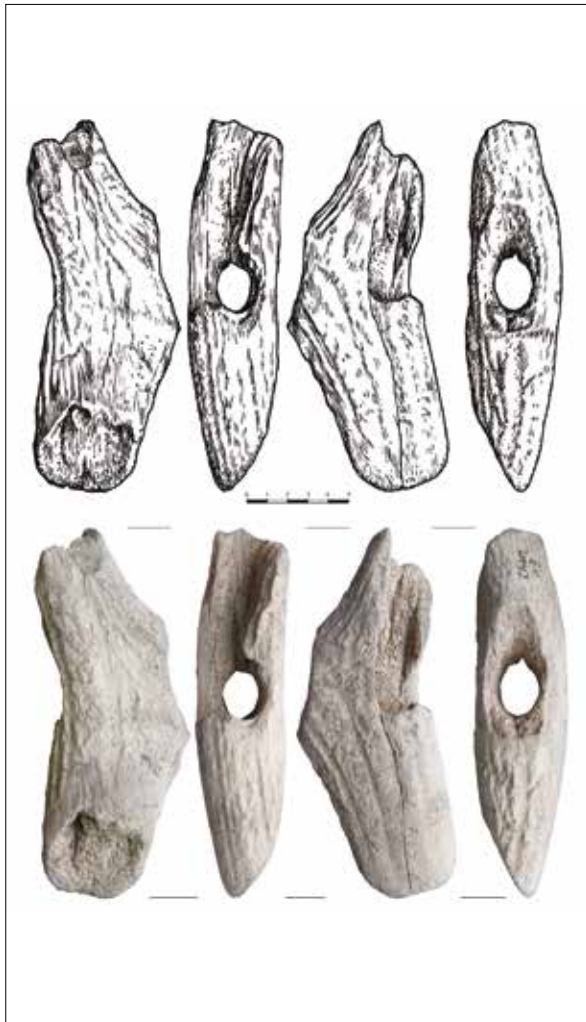


Fig. 9. Smarhon area. Michnievichy. Red deer antler tool with a hole. Type I. B. 4. c. (drawing by V. Petrushenka; photo by A. Vashanau).

face of the antler rod was flattened by means of scraping. Since the shapes of the holes are different in all cases – from round to elongated, we can assume that the technique of manufacturing the holes could combine both manual cutting of the antler sponge mass and mechanical drilling, if a pre-prepared flat surface was available.

Thus, the features that are common for all instruments of this type include the choice of the medial part of the antler for the preform, and the location of the hole in the side plane with an offset, usually towards one end.

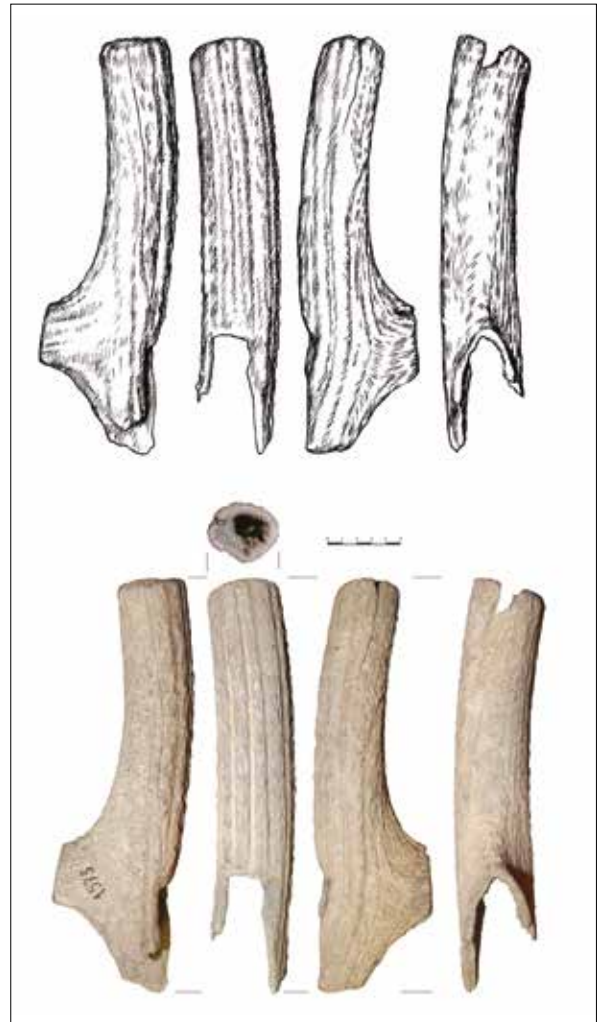


Fig. 10. Smarhon area. Michnievichy. Fragment of red deer antler tool with a hole. Type I. B. 4. c. (drawing by V. Petrushenka; photo by A. Vashanau).

The working blade is oriented in parallel to the attachment of the handle. The existing examples bear no traces of use. All tools have a highly eroded surface (Fig. 7.2).

Among the materials from central and northern European archaeological sites, this type of item is known as a T-shaped axe, the manufacturing technology of which is clearly defined by standardisation. Similar tools were found in the territory of south-western Belarus,³³ Poland,³⁴ Lithuania,³⁵ Latvia,³⁶ Ukraine,³⁷ Russia,³⁸ France³⁹ and the UK.⁴⁰

³³ Vashanau 2019.

³⁴ Wiślański 1979, fig. 135.22; Ilkiewicz 1989; Grygiel, Bogucki 1990; Pawlata 2006, 202, 203, table I.1, 4; 2008, 123, fig. 7.1; Ilkiewicz 2009/2010, 39, fig. 8.2-3; Kabaciński *et al.* 2014.

³⁵ Rimantienė 1971, 167, fig. 145.3; Girininkas 2015, 74, pav. 61; Piličiauskas *et al.* 2015.

³⁶ Bērziņš *et al.* 2016.

³⁷ Danilenko 1985, 123, fig. 31.7; Chernysh 1996a, 21, fig. 1.77; 1996b, 28, fig. 3.13; Tovkaylo 2005, 29, fig. 44.1.

³⁸ Timofeyev 1981.

³⁹ Ducrocq 2001, 196, 197, fig. 178.

⁴⁰ Smith 1989, 278, fig. 4b.

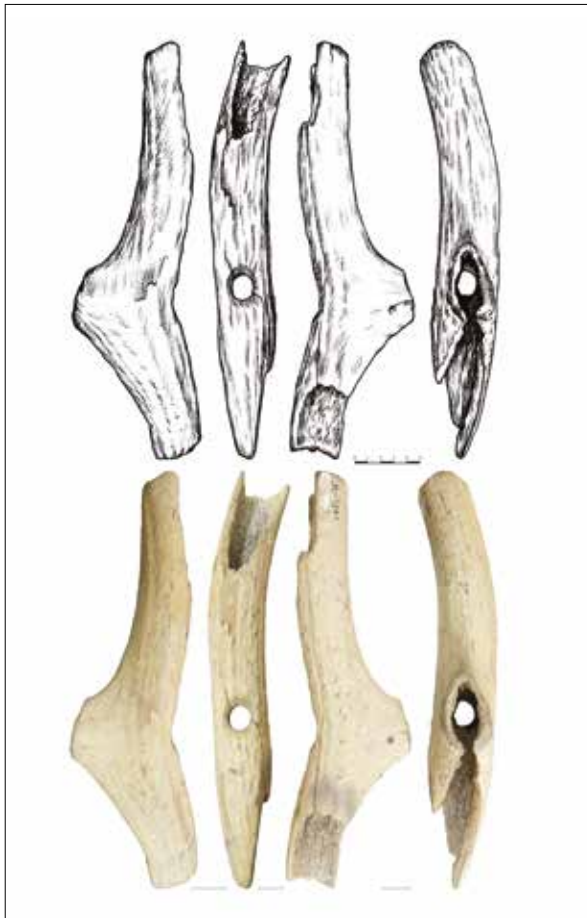


Fig. 11. Smarhon area. Michnievichy. Fragment of red deer antler tool with a hole. Type I. B. 4. c. (drawing by V. Petrushenka; photo by A. Vashanau).



Fig. 12. Smarhon area. Michnievichy. Red deer antler tools, fragments with holes. Type I. B. 4. c. (drawings by V. Petrushenka – 1, M. Chernyavskiy – 2, 3 (Chernyavskiy 1992); photos by A. Vashanau).

I. C. 2. b. A single object (n=1) (Fig. 17.1, Table 1) from the distal part of a red deer antler (the rod passing into the crown) unfortunately survived in a poor state of preservation. The drilled hole is located in the frontal position with an offset towards one end. The working end, asymmetrically bevelled, is oriented perpendicularly to the attachment of the handle. The fragmentation of the item makes it difficult to find analogies to this artefact.

I. C. 2. d. A single specimen (n=1) (Fig. 17.2, Table 1) represented by an item most likely made from the distal part of a red deer antler. The partially preserved hole is located in the front. The working end is missing.

I. D. 2. c. A group of items with a drilling, for which red deer antler tines were used as a preform, is represented by a single item (n=1) (Fig. 17.3, Table 1). The tine is sep-

arated from the rod by pre-chopped grooves. The hole is located in the frontal position with an offset towards one end. Before drilling, the plane of the antler was cut and flattened. The asymmetrically bevelled working blade is parallel to the attachment of the handle. Such artefacts are known from the territory of Denmark,⁴¹ Ukraine,⁴² Romania⁴³ and northern Belarus.⁴⁴

Type II (Table 1) includes items with drilled holes for which elk antler served as raw material.

II. A. 1. b. One tool (n=1) was made from the basal part of an elk antler (Fig. 18, Table 1). A hole was drilled in the frontal plane of the antler. The hole is offset towards one end. The symmetrically bevelled working blade is oriented perpendicularly to the attachment of the handle. The item seems to have been used for a long

⁴¹ Plonka 2003, 354, 356, figs 27.3, 29.

⁴² Danilenko 1985, 120, fig. 30.11; Peleshchin 1985, 274, fig. 72.15; Sveshnikov 1985, 286, fig. 74.5.

⁴³ Plonka 2003, 355, fig. 28.2.

⁴⁴ Chernyavskiy 2007, 52, fig. 22.4.



Fig. 13. Smarhon area. Michnievichy. Red deer antler tool with a hole. Type I. B. 4. c. (drawing by V. Petrushenka; photo by A. Vashanau).

time and to have undergone a number of changes – on the wide butt end of the tool, a contour of the previous hole is clearly visible. Apparently, a part of the tool was lost in the course of its use. To avoid having to produce an entirely new one, the owner chose to drill a new hole in the existing fragment. Unfortunately, the traces of use on the bevelled working end were not preserved. The authors of this article are not aware of any similar artefacts at the moment.

II. B. 1. b. From the medial part, closer to the natural edge of the antler shovel, the preform for another special type ($n=2$) of tools (Fig. 19.1, Table 1) was cut or chopped (no traces of production were preserved). The hole is drilled in a wide, frontal plane, and offset towards one end. The asymmetrically bevelled working blade is sharpened at the opposite end. The blade is oriented perpendicularly to the attachment of the handle. The working blade was sharpened (or resharpened) by planing (barely visible traces remain on the artefact's surface). It is important to note the exceptional length and marked narrowing of the working end. Apparently, this form of working blade existed due to the specific use of



Fig. 14. Smarhon area. Michnievichy. Fragment of a preform of a red deer antler tool. Type I. B. 4. c. (drawing by V. Petrushenka; photo by A. Vashanau).



Fig. 15. Smarhon area. Michnievichy. 1 – Preform of a red deer antler tool; 2 – Red deer antler. Production waste (photos by A. Vashanau and A. Malyutina).

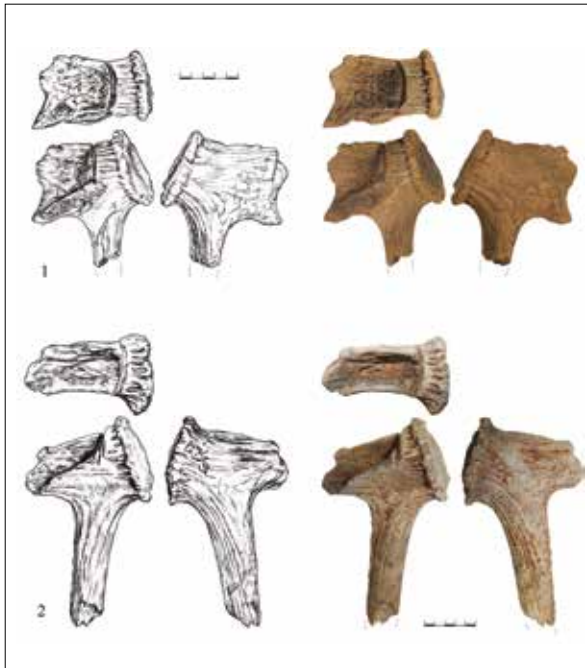


Fig. 16. Smarhon area. Michnievichy. Red deer antler. Production waste (drawing by V. Petrushenka; photo by A. Vashanau).

tools (possibly for digging, loosening, or breaking ice or soil). Unfortunately, a more detailed analysis of the function of this item is not possible due to its poor state of preservation. A heavily deformed object with a hole in the frontal plane is, probably, the same type of item (Fig. 19.2). Such artefacts are known from southern Belarus.⁴⁵

II. B. 2. d. Among the remarkable items with drilled holes from an elk antler shovel, there is one object in the collection of artefacts from the Smarhon pit (n=1) which is difficult to attribute to any of the utilitarian instruments or their preforms, so we distinguish it in a separate subtype (Fig. 20; Table 1). Despite the artefact's poor state of preservation, there are slightly noticeable cut marks on its surface, on three sides. We can assume that this is a heavily modified artefact, which was reworked from what was originally a different type of object. No straight analogies have been found for this type of item. The antler artefacts from the Nizhneye Veretye site in north-western Russia are the closest morphologically.⁴⁶

II. AB. 1. c. Another unique type of tool in which the drilled hole was chopped or cut (no traces of production have been preserved) from the basal, passing into the medial (shovel), part of an elk antler (Fig. 21, Table 1). This product's distinctive feature is the location of the hole – frontally, in the central part of the tool. As is the

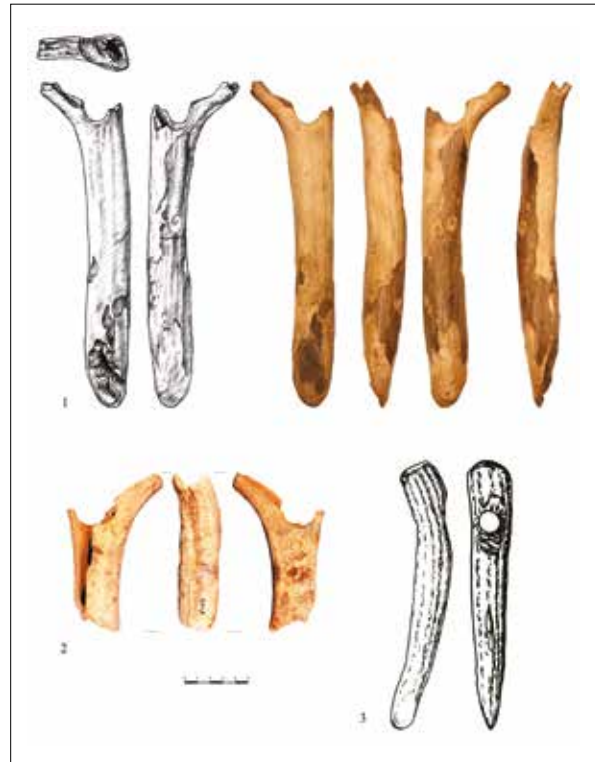


Fig. 17. Smarhon area. Michnievichy. Red deer antler tools, fragments with holes. 1 – Type I. C. 2. b.; 2 – Type I. C. 2. d.; 3 – Type I. D. 2. c. (drawings by V. Petrushenka – 1, M. Chernyavskiy (Chernyavskiy 1992) – 3; photos by A. Malyutina).

case with **type II. B. 1. b.**, the working end of the product is elongated and narrowed. However, the asymmetrically bevelled blade remains parallel to the attachment of the handle. Unfortunately, the surface of the object is heavily eroded and no trace of use has been preserved.

Ornamented 'wands' (*bâton de commandement*) (Figs 22, 23; Table 1) which are also made of elk antler hold a special place in the collection. Due to the heavy processing of the items, it is difficult to say which part of the antler shovel was used as a preform, so we defined it as a separate **E** subtype.

II. E.3. b. The first 'wand' is preserved almost entirely and resembles a zoomorphic image of an elk's head (Fig. 22). The degree of the item's secondary treatment does not allow us to unequivocally describe the fragment of the antler shovel selected for the future preform (our version is shown in the scheme – Fig. 22.a). A hole for fixing it to a rod/shaft was cut out at one end, in the side face of the object (Fig. 22.e). The hole is offset towards one end of the item. A 'neck' was carved out of the antler

⁴⁵ Kryval'tsevich 1996, 158, 159, fig. 5.5; 2009, 137, fig. 1.

⁴⁶ Oshibkina 2006, 212, figs 7, 9.



Fig. 18. Smarhon area. Klidzianiaty. Elk antler tool with a hole. Type II. A. 1. b. (drawing by V. Petrushenka, M. Chernyavskiy (Chernyavskiy 1992)).



Fig. 19. Smarhon area. Michnievichy. Elk antler tool with a hole, fragment of tool. Type II. B. 1. b. (photo by A. Malyutina and M. Tkachova).

and then, at an angle to it, a ‘muzzle’ with a designated protrusion – ‘ear’. The entire surface of the item was then polished and planed. The tip of the ‘muzzle’ was partially destroyed. Unlike the second ‘wand’ (Fig. 23), this item has no glossy shine, which is probably due to the acidic environment of the soil in which the item was found. The artefact is ornamented. Two parallel ‘herringbone’ or chevrons lines were carved on one of the wide sides using a stone cutter (Fig. 22.c) (Motive A5 after Płonka);⁴⁷ on the opposite side, two parallel blurred lines of zigzags were cut. Here, next to the ‘ear’, two triangles filled with parallel lines were placed (a schematic image of a building?) (Fig. 22.b) (Motive D2 after Płonka).⁴⁸ On the lower lateral edge, under the ‘muzzle’, there is one zigzag line with preserved black paint (Fig. 22.d) (Motive A24 after Płonka).⁴⁹ No traces of use were found on the object. An artefact very similar in morphology is known from the territory of Finland.⁵⁰

II. E. 4. b. The second ‘wand’ (Fig. 23) is partially preserved. It appears that we have half of the item which was broken along a hollow cut out in its side. One end of the preserved fragment is rounded. The opposite end, on the side face, has a hollow cut (it could probably have been an inside-out hole, but the fracture that went through this part does not allow us to judge for sure). The entire surface of the object was polished (Fig. 23.b), giving the object even facets. The smooth, shiny surface was formed after polishing. It is possible that the object acquired its gloss after additional operations (e.g. soaking in fat or oils, a method which has been proven for Neolithic antler items from the settlement on Lake Zürich, Switzerland).⁵¹ All faces of the object are decorated with geometric ornamentation. On the side faces, the ornament has a form of cuts (Fig. 23.c,d) (Motive A1 after Płonka)⁵² and ‘grids’ of lines (Fig. 23.a) (Motive A1+G1 after

⁴⁷ Płonka 2003.

⁴⁸ Płonka 2003.

⁴⁹ Płonka 2003.

⁵⁰ Mannermaa 2016.

⁵¹ Spangenberg *et al.* 2014.

⁵² Płonka 2003.



Fig. 20. Smarhon area. Michnievichy. Elk antler tool (?) with a hole. Type II. B. 2. d. (photo by A. Malyutina).

Łlonka),⁵³ and on the wide sides it takes the form of zig-zag lines parallel to each other, echoed by a line of drilled recesses (Fig. 23.b) (Motive A24+H3 after Łlonka).⁵⁴

Summary

As a result of the traceological analysis of thirty antler tools with drilled holes, preforms, and production waste, the methods of processing red deer and elk antlers were determined. In the preserved tools, the red deer antler was used in its entirety – from the base to the tines. It is possible that the morphometry of future tools was predetermined by the selection of the part or fragment of the antler used for their production. The choice of antler fragment also dictated the technology of its processing and, most likely, even the functional specification of the finished product. The elk antler preforms were most commonly made of the broad medial part (shovel). The elk antler items at our disposal are singular, unique finds, some of which are heavily-worn, modified objects or items of non-utilitarian nature (*bâton de commandement*).

Following the traceological analysis of the materials from the Smarhon quarries, as well as typological sequences created by archaeologists for western and northern Europe, we have offered our own typology for perforated antler tools. According to this scheme, the entirety of the Smarhon complex of antler tools with drilled holes can be divided into thirteen types. Four more types are represented by heavily fragmented objects which cannot be matched with any other type. The original selection



Fig. 21. Smarhon area. Michnievichy. Elk antler tool with a hole. Type II. AB. 1. c. (photo by A. Malyutina and M. Tkachova).

of the type of raw material was used as the basis for the sequence proposed here. Further differentiation is based on the selection of the specific part of antler which was to be used as a preform for the final tool – basal, medial, distal, or tines. According to the location of the drilled hole and the working end, the objects were further classified as belonging to one of four groups. However, the

⁵³ Łlonka 2003.

⁵⁴ Łlonka 2003.



Fig. 22. Smarhon area. Klidzianiaty. Bâton de commandement. Type II. E. 3. b. (macrophotograph by A. Malyutina).

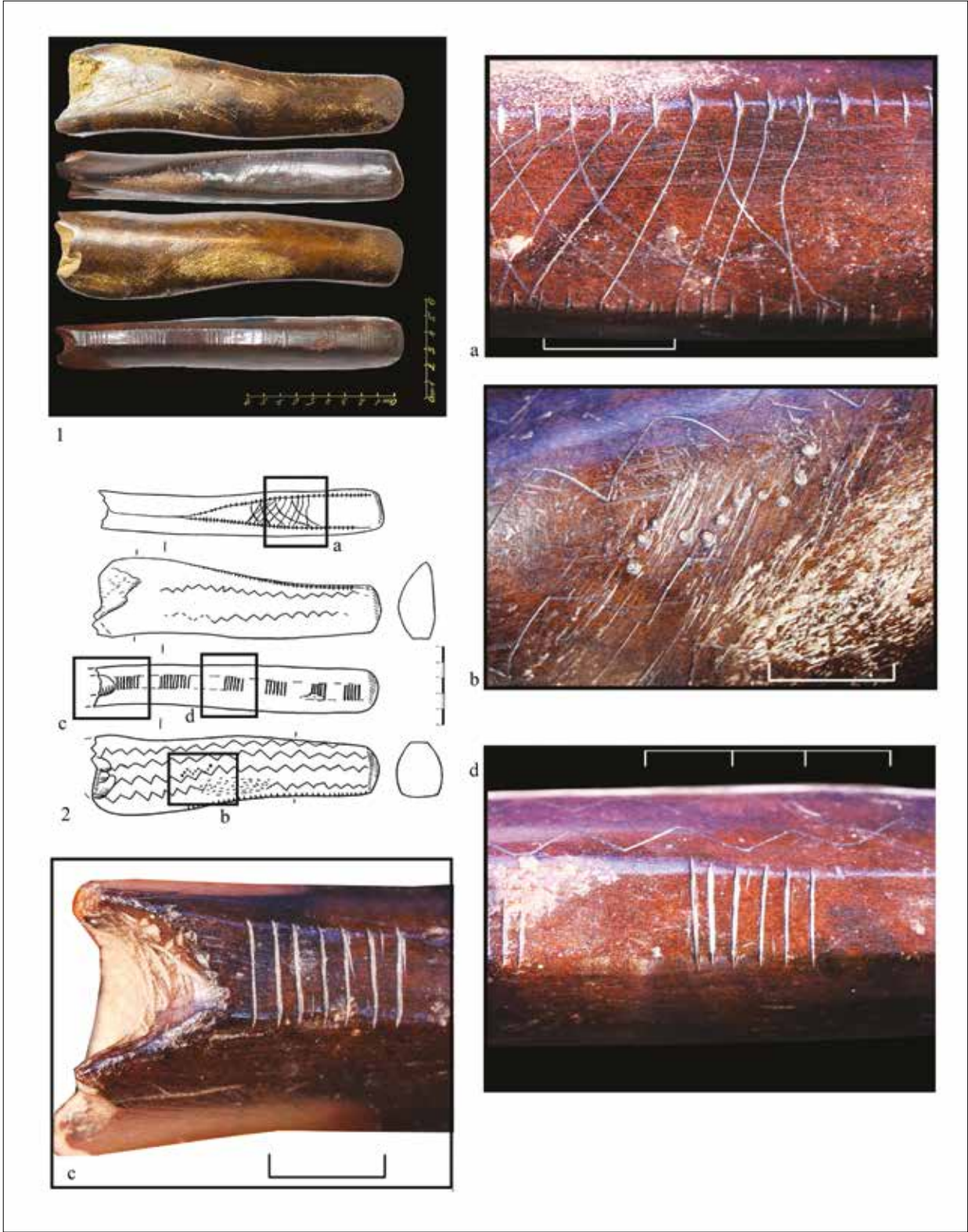


Fig. 23. Smarhon area. Michnievichy. Bâton de commandement. Type II. E. 4. b. (macrophotograph by A. Malyutina).

question of the relation between the type and function of a tool remains open. Out of the thirty tools, we were able to identify the function of only one (wood-cutting). It is obvious that to answer this question we must turn to analogous materials preserved in a better state and conduct further experimental investigations.

The analysis performed has revealed a significant typological diversity of the material. Some of its variations

have close analogies in north-western and central parts of Europe, which can imply close contact between the ancient populations of these vast territories. The initiated direct dating of selected type-forming items from the Smarhon complex will allow more detailed analyses of the cultural and historical context of such relations and interactions.

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LATE NEOLITHIC AND EARLY BRONZE AGE TECHNOLOGICAL AND TYPOLOGICAL ELEMENTS IN THE PRODUCTION OF FLINT PROJECTILE POINTS OF THE NEMAN CULTURE IN THE POLISH LOWLAND REGION

ABSTRACT

The production of flint projectile points in the late stage of the Neman culture shows certain elements which are clearly similar in terms of technology and typology to the solutions known from flint-working of the people representing the Neolithic and Early Bronze Age cultures. The occurrence of such features has already been presented in relation to Neman culture ceramic production which lies at the heart of the concept of separating horizons within Linin type complexes. An in-depth analysis of the techno-typological features of flint-working in the Neman culture, and especially the typological category of projectile points, reveals similar patterns as well as cultural and chronological references in the case of ceramics.

The most striking elements show analogies to those known from the south-eastern area of the cultural groupings influenced by impulses flowing from the civilization centres of the time. Traces of these influences are clear in certain typological and technological solutions, such as the forms of triangular projectile points, or in applying a trough-like retouch on such points. At the current stage of research, it is hard to determine whether the analogies observed result from not yet recognised intercultural contacts, or rather constitute a certain *signum temporis* characteristic of production in a wider area but during a single, specific chronological interval.

Keywords: Late Neolithic, Neman culture, flint production, projectile points

The group of small flint tools originating from the late stage of the Neman culture includes numerous arrowheads, commonly called 'projectile points'. A range of features of their manufacturing technique shows similarities, in terms of technology and typology, with some elements known from flint-working in other cultures from the Late Neolithic and Early Bronze Age. The occurrence of analogous borrowings has already been noticed some time ago and presented in relation to Neman culture pottery production.¹ These observations laid the foundation for the concept of separating chronological

horizons within Linin type pottery assemblages.² In the absence of in-depth analytical studies on Neman culture flint-working, it was assumed that identifying and selecting a sequence of changes within para-Neolithic material progressing in parallel with the development of the forest cultural system would be possible exclusively on the basis of research into certain features of clay pots. However, a meticulous study of the techno-typological features of Neman culture flint-working, and especially of the most distinctive tool category – projectile points (Fig. 1) – does, in our view, allow to find elements and references

¹ Gardawski 1958, 305, 306; Kowalczyk 1969, 29–31; Kempisty 1973, 35–39.

² Kempisty 1973, 19–22; Józwiak 2003, 195–209.

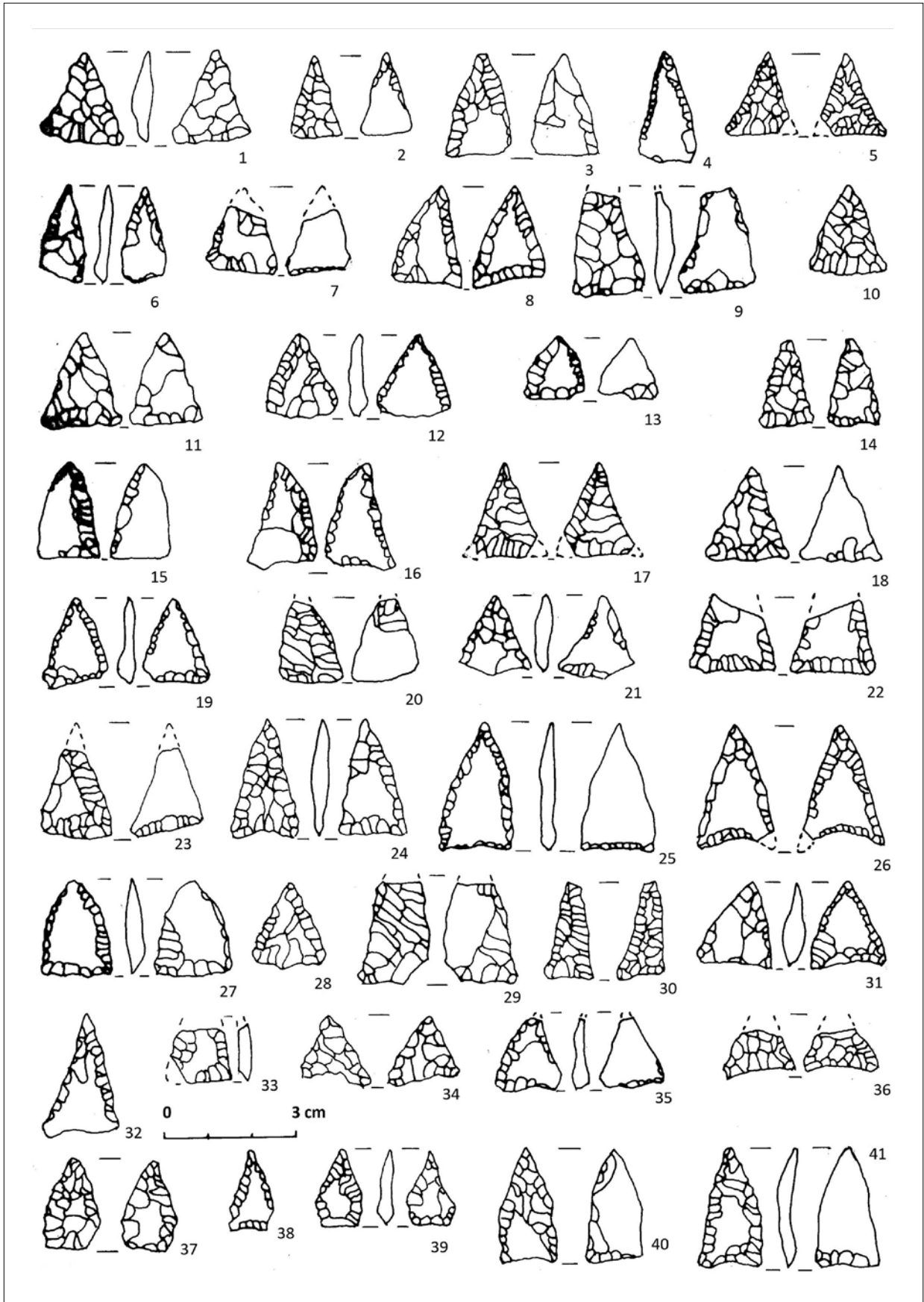


Fig. 1. Projectile points from Neman culture sites according to Kowalewski 2019, figs 1–2 (drawing by B. Karch).

to culture and chronology similar to those indicated in research on pottery production.

In terms of the technological and stylistic features of the ceramic vessels which were linked to the earliest of the distinguished horizons, i.e. the first Linin horizon, references have been observed pointing to pottery production from later stages of the Funnel Beaker culture.³ At the same time, although Neman culture flint-working lacks any direct connotations with the Funnel Beaker culture, some types of triangular projectile points do show similarities with specimens occasionally found in burials known from the southern range of the latter.⁴ It is emphasised, however, that such finds are extremely rare.⁵ Simultaneously, the archaeological context of these points in Funnel Beaker culture assemblages cannot be unambiguously assigned to any specific culture. Both the scarcity of specimens and the location of these projectile points within the skeletons may, in some cases, indicate that the use of the described products is responsible for the death of the buried individuals.⁶ The clearest and most numerous analogies for triangular specimens from the Neman culture can be found in the flint-working of the Tripolye culture and the Lublin-Volhynian culture⁷ (Figs 2–4). Apart from the undoubted similarities in terms of form, one should also mention the use of the pseudo-trough retouch in Neman culture flint-working which is attributed to Eneolithic industries.⁸ The emergence of these tool-making methods within the current territory of Poland is connected with the Lublin-Volhynian culture.⁹ One can also quote further arguments that attest the functioning of quite intensive contacts between the population of the Lublin-Volhynian culture and that of the Neman culture. Views on the influences coming from this cultural environment have been presented in the past based on research of para-Neolithic pottery.¹⁰ In addition, traces of a settlement of the Lublin-Volhynian culture population have been discovered quite far north from their homeland.¹¹ The existence of the above-mentioned contacts is evidenced by the presence of

trapeziums in the Lublin-Volhynian assemblages and even projectile points of the Sośnia type, which were previously believed to belong exclusively to the Neman culture.¹² At the present stage of research, it is already possible to indicate clear and relatively numerous analogies between the types of triangular flint projectile points identified for the Lublin-Volhynian¹³ and Neman cultures.¹⁴ Hence, the asymmetrical triangular projectile points of the Neman culture¹⁵ (fig. 1: 1, 10, 18) find their formal analogues in the shapes of the Lublin-Volhynian points classified as Type A.1–5.¹⁶ In turn, triangular projectile points from the inventories of the Neman culture, with concave side edges and bases¹⁷ (fig. 1: 5, 17), have their counterparts in Type A.7.1 points of the Lublin-Volhynian culture.¹⁸ The Lublin-Volhynian Type A.4.1 and 4.2. specimens¹⁹ are a clear analogy for forest projectile points with a straight base and convex lateral edges²⁰ (fig. 1: 27). Moreover, the triangular projectile points of the Neman culture with slightly convex, raw bases and flat retouched edges²¹ (fig. 1: 12) are similar to those distinguished for Types A.2.1 and B.2.1 of the Lublin-Volhynian culture.²² As already mentioned, numerous references can also be noted in the frequent use of the pseudo-trough retouches on the described artefacts. Both the retouching methods and the location of the retouch on individual projectile points indicate a strong relationship within an almost identical technological idea used by both cultural groups.

As is the case for the Eneolithic south-eastern implications, the broadly defined typological and stylistic features known from the production of projectile points in the Corded Ware culture,²³ as well as the Mierzanowice culture representing the post-Corded groups of the Early Bronze Age,²⁴ are also reflected in a certain kind of points discovered at Neman culture sites²⁵ (fig. 1: 25, 37, 39, 40). It can thus be assumed that the chronological position of such specimens can be synchronous with the third and fourth Linin horizons separated on the basis of ‘Corded’ features perceived in Neman culture ceramics.²⁶ In addition to the similarities between Neman

³ Józwiak 2003, 196–199.

⁴ Gurba 1959, 14–16, fig. 5a; Libera, Zakościelna 2006, 151, 152, figs 14: 18, 19.

⁵ Gajewski 1949, 10; Libera, Zakościelna 2006, 152, 162.

⁶ Libera, Zakościelna 2006, 161.

⁷ Borkowski, Kowalewski 2019.

⁸ Libera, Zakościelna 2013, 217, 225.

⁹ Libera, Zakościelna 2013, 219.

¹⁰ Gardawski 1958, 305; Gajewski, Gurba 1965, 32, 33; Gurba 1973, 86, 87.

¹¹ Bargieł, Zakościelna 2005, 40.

¹² Zakościelna, Libera 2007, table 1, 260, fig. 2; Kufel-Diakowska, Wilk 2018.

¹³ Zakościelna 1996, fig. 9.

¹⁴ Kowalewski 2019, 325, 328, 329, figs 1: 1–24, 2: 1–6.

¹⁵ Kowalewski 2019, fig. 1: 1–8.

¹⁶ Zakościelna 1996, fig. 9.

¹⁷ Kowalewski 2019, fig. 2: 1–5.

¹⁸ Zakościelna 1996, fig. 9.

¹⁹ Zakościelna 1996, fig. 9.

²⁰ Kowalewski 2019, fig. 2: 6.

²¹ Kowalewski 2019, fig. 1: 12, 13.

²² Zakościelna 1996, 67, fig. 9.

²³ Borkowski 1987, 156–160.

²⁴ Borkowski 1987, 161–167.

²⁵ Kowalewski 2019, 329, 331, fig. 2: 7–17.

²⁶ Józwiak 2003, 201–209.

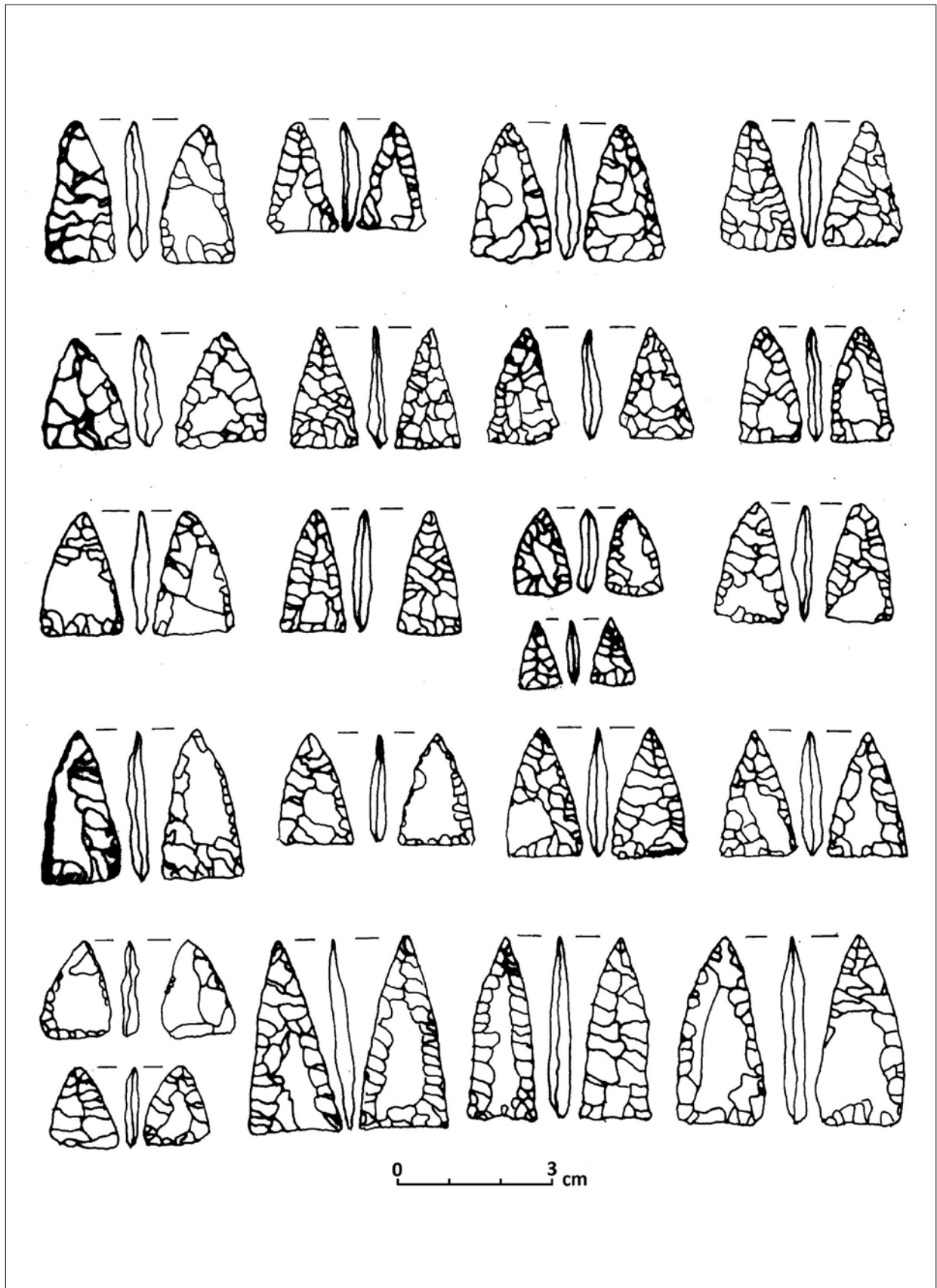


Fig. 2. Projectile points from compact assemblages of the Tripolye culture according to Chernovol, Radomsk'yy, figs 2-7, 10-12 (drawing by B. Karch).

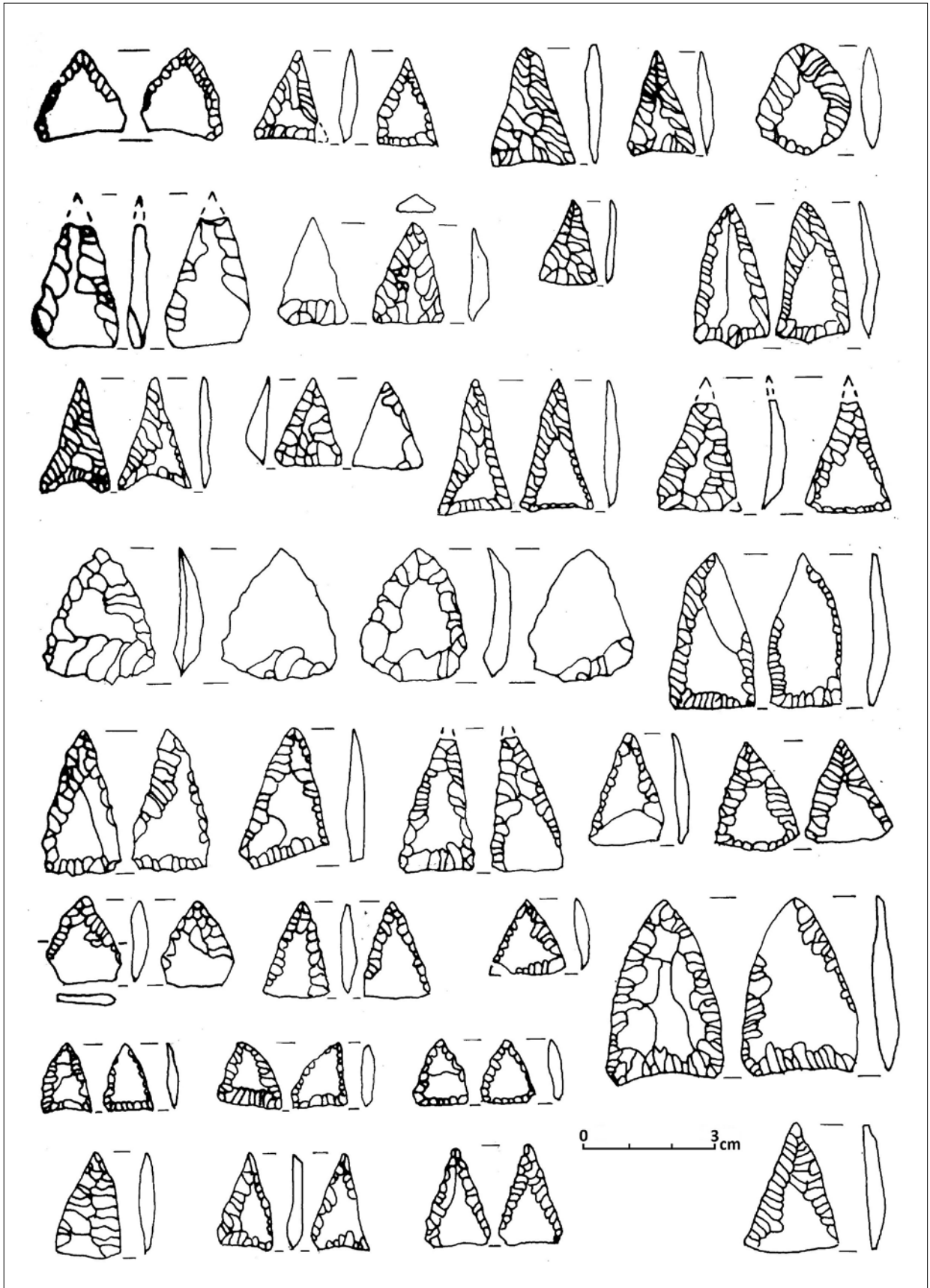


Fig. 3. Projectile points from compact assemblages of the Lublin-Volhynian culture according to Zakościelna 1996, tables II, IV, VI, XXII, XXIII, XXVII, XLII, XLV, XLIX, L, LII, LIV, LVI (drawing by B. Karch).

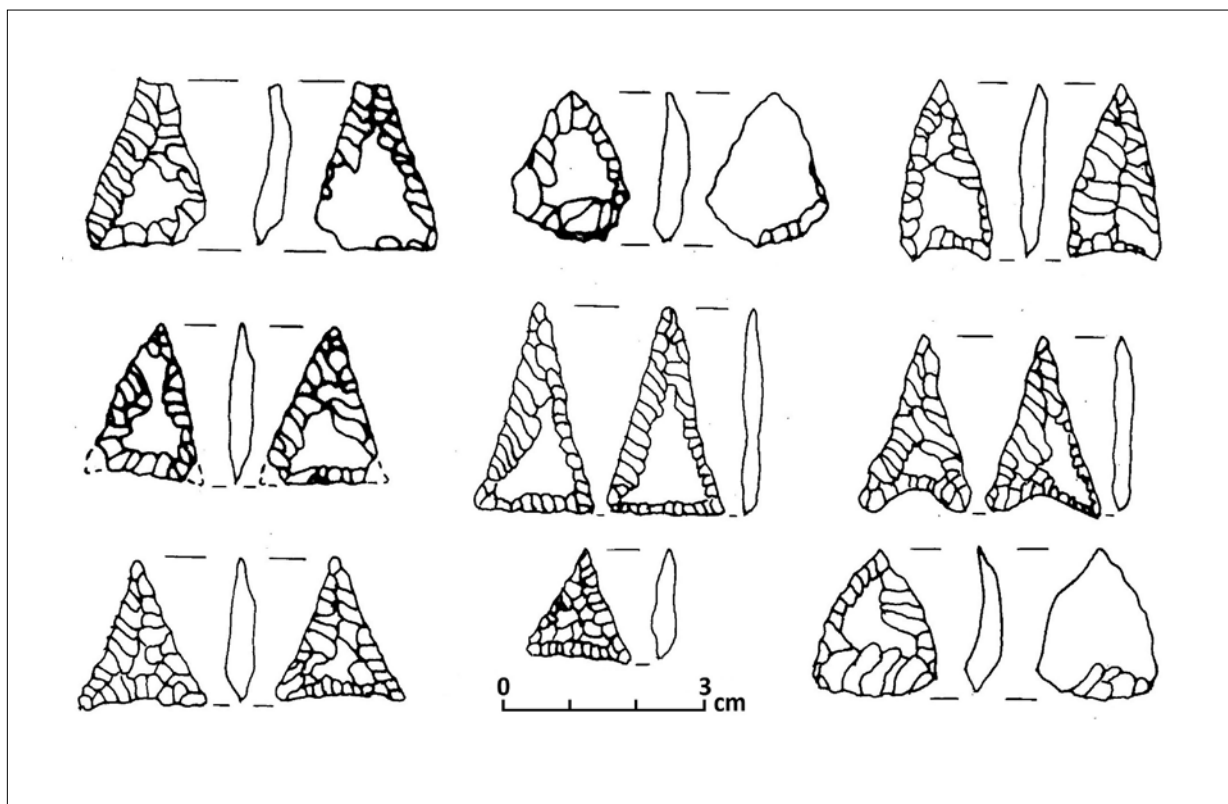


Fig. 4. Projectile points from compact assemblages of the Lublin-Volhynian culture according to Zakościelna 2010, tables XVI, LXII, LXVI, LXX, LXXXVIII (drawing by B. Karch).

culture and 'Corded' projectile points, one can also point out several distinctions which give the Neman culture specimens a certain individual trait. Although they fall in the broadly defined category of Corded Ware culture features, they also bear the mark of a unique 'forest' style. They are distinguished by a common, characteristic method consisting of one-sided retouch of the edge part or the surface, while the other side is almost raw as it is retouched only at the base (fig. 1: 25, 40, 41). Similar technological solutions are known from the production of projectile points in the para-Neolithic Zedmar culture,²⁷ but are also strongly associated with the 'Corded' environment of the Złota culture²⁸ (Fig. 5).

The mechanisms governing this intercultural communication and the degree of its symmetry, as reflected by the intensity of the interactions of the participating groups, are currently unknown and require further research. Based on the example of noticeable influences found in Neman culture pottery production and the

clear references to the patterns known from the Lublin-Volhynian production in the techno-typological features of Neman culture flint projectile points, a significant relationship between the two cultural environments may be postulated. It should be recalled here that research on the potential contacts of the lowland 'Beaker' societies with the Tripolye culture²⁹ and the Lublin-Volhynian culture communities has already been conducted for many years.³⁰ One of the key issues in this regard is the presence of macrolithic products of the Volhynian flint³¹ at the lowland sites of the Funnel Beaker culture, which was perceived as solid evidence for contacts with this raw material's area of origin.³² Some papers addressing these issues emphasise that the para-Neolithic communities of the time undoubtedly must have also participated in relations and cultural contacts between the inhabitants of the Polish Lowland and the neighbouring south-eastern groups influenced by the civilization centres of the time, in addition to the representatives of the Funnel Beaker

²⁷ Różańska 2011, fig. 2: 20, 21.

²⁸ e.g. Krzak 1970, 21, fig. 9: f; 45, fig. 32: b, c, e; 103, fig. 85: f, 1; 117, fig. 100: a; 137, fig. 122: h.

²⁹ Koško 1981; 1988, 173–175.

³⁰ Domańska 1995, 166.

³¹ Domańska 2013, 106; Adamczak *et al.* 2019, 183, 184.

³² Balcer 1983, 205; Koško 1988, 173, 174; Domańska 1995, 166; Rzepecki 2004, 173.

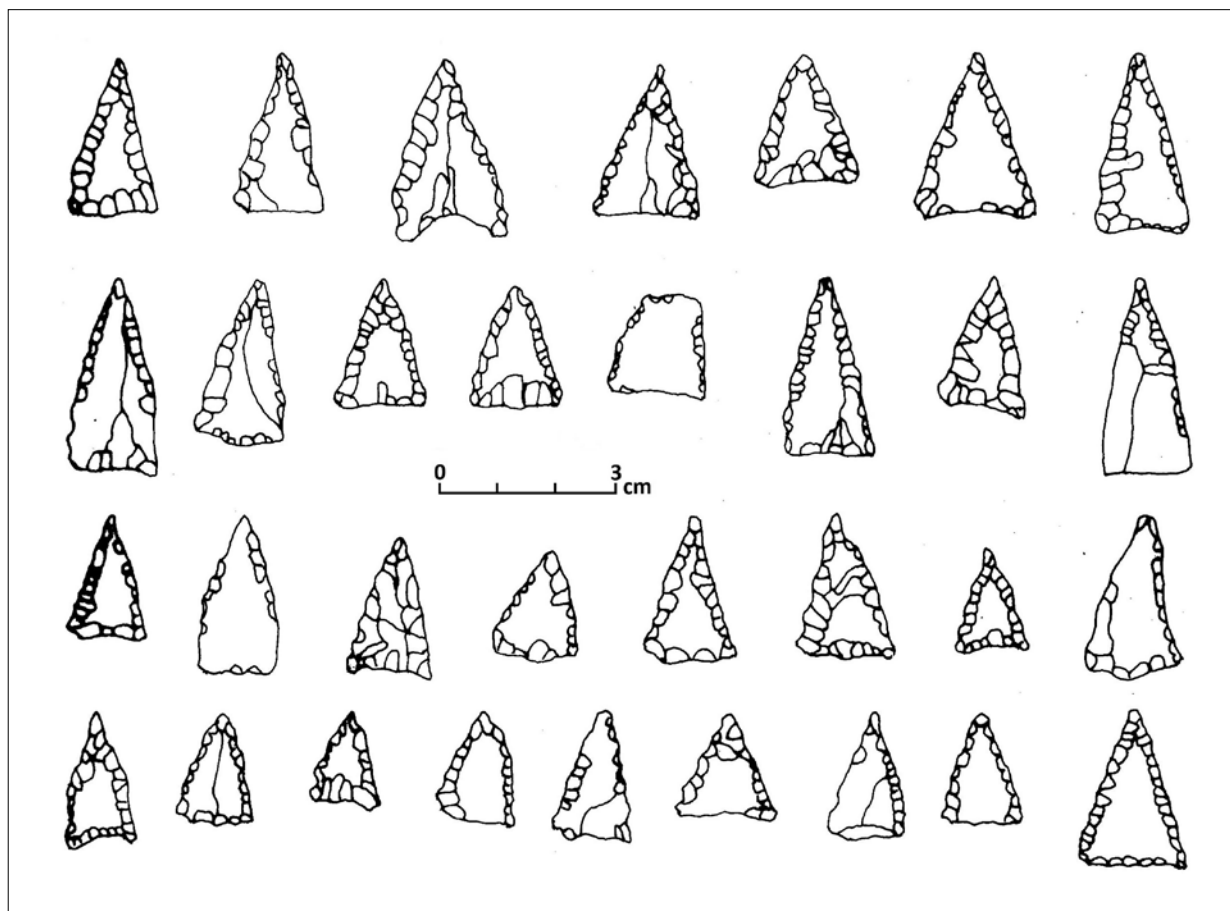


Fig. 5. Projectile points of the Złota culture according to Krzak 1970, figs 3, 32, 64, 80, 85, 100, 118, 122 (drawing by B. Karch).

culture.³³ Traces of southern cultural diffusions perceptible in 'forest' pottery have also been pointed out.³⁴ As mentioned above, the marks of such relations are also legible in the triangular projectile points of the Neman culture. First of all, they can be seen in the typological solutions exemplified by several variants appearing among points of this type. In addition, from the point of view of the technological procedures used, southern influences are manifested by the use of pseudo-trough retouch which has already been mentioned. At the current stage of research, it is still difficult to understand and define the essence of the mechanisms of these contacts and impacts. According to some researchers, the Lublin-Volhynian culture communities may have been interested in the lowland Cretaceous flint deposits.³⁵ Nevertheless, what is most interesting is that the described cultural relations took place between environments that seemingly differed in all respects. On the one hand, there were

hunter-gatherers cultivating a Mesolithic lifestyle, and on the other hand, the representatives of an Eneolithic civilization who maintained contacts with the leading cultural centres of the time. It seems that these were completely separate worlds and yet, for some reason, these peoples not only maintained contact with each other, but also fostered mutual cultural diffusion, as is clearly visible in materials from the sites of both taxonomic units (Fig. 6).

In turn, traces of the influence of the Corded Ware culture have so far been cited in the form of examples provided by the pottery production of the Neman culture.³⁶ In this case, the intensity of contacts leading to 'Corded' cultural diffusions may be confirmed by research on the settlement structure of the Corded Ware culture, which included, in the area of Masovia and Podlachia, zones adjacent to or overlapping with the ecumene of the Neman culture community.³⁷ Traces reflecting the potential impacts of the Early Bronze Age

³³ Koško 1981, 166.

³⁴ Gurba 1973, 86, 87.

³⁵ Bargiel, Zakościelna 2005, 40.

³⁶ Józwiak 2003, 201–209; Domaradzka 2012, 35, 36; Manasterski, Januszek 2013, 28, 31–35.

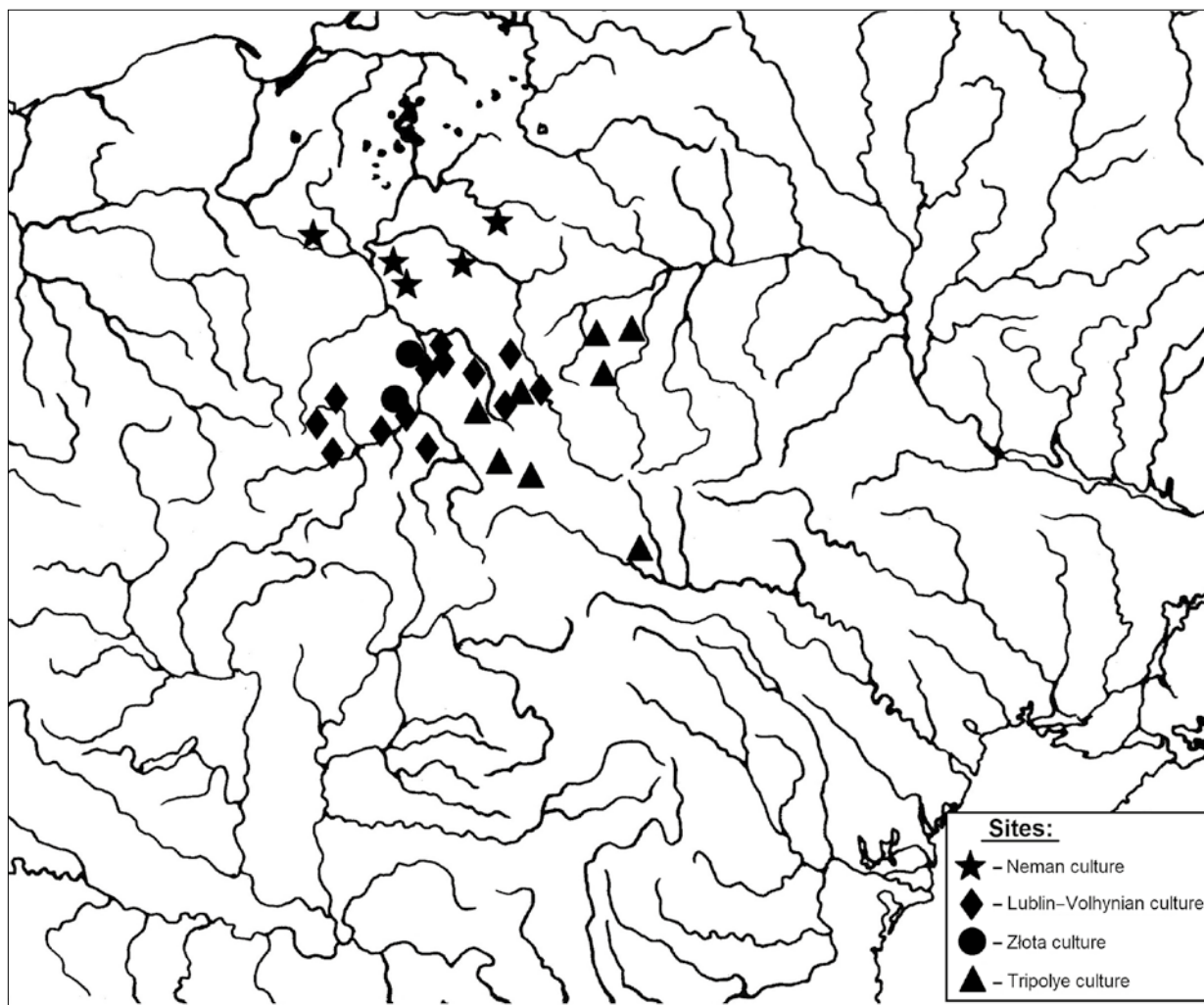


Fig. 6. North-western coverage of selected Late Neolithic cultures in comparison with the south-eastern range of projectile point assemblages in the Neman culture. Based on Zakościelna 1996, map 1; Zakościelna 2010, fig. 1; Józwiak, Domaradzka 2011, figs 3–9; Rybicka 2017, fig. 4 (drawings by B. Karch and W. Borkowski).

environment on the Neman culture show similar patterns.³⁸ Reminiscences of the described influences, in addition to decorative threads which are visible in Neman culture pottery, can also be observed in forest-zone flint projectile points. It should be assumed that if the traces of south-eastern impacts reflect the functioning of a system of contacts and connections of probably economic nature that has not yet been satisfactorily recognised, the material manifestations of the influence of the ‘Corded’

and ‘post-Corded’ groups are an expression of a kind of *signum temporis* which at the time set the rhythm of intensive and profound socio-cultural changes taking place in today’s Polish territory as well as in broadly defined Central Europe. A later result of these processes was a decline of the Late Neolithic and Early Bronze Age cultural structures that led to their integration within the emerging Trzciniec cultural circle, which in turn was an indication of the advent of the real Bronze Age.

³⁷ Bargiel, Zakościelna 2005, 41–43.

³⁸ Kadrow, Machnik 1997, 47; Bargiel, Zakościelna 2005, 43; Zalewski, Wójcik 2016, 89–94.

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POTTERY VESSELS AS EVIDENCE OF CULTURAL DIFFUSION IN THE LATE NEOLITHIC AND EARLY BRONZE AGE IN MASOVIA AND NORTH-EASTERN POLAND

ABSTRACT

In the Late Neolithic, the area of today's north-east Poland was a frontier of two different socio-economic and belief systems, one represented by societies based on a food-producer economy, the other by hunter-gatherer groups. They were involved in processes which led to the emergence of many local syncretic societies, the majority of which complied with the conventions of the para-Neolithic communities. This foundation, already complex in the Late Neolithic, was further differentiated as a consequence of the influence of the Bell Beaker and Iwno cultures. As a result, the multi-

vector processes that transpired between various societies at the time led to the formation of a new phenomenon in north-eastern Poland. It was characteristic for the Early Bronze Age and was called the Trzciniec culture, which was part of a much broader cultural convention known as the Trzciniec cultural circle. Due to the nature of the discoveries from this area, the phenomenon is best reflected in pottery, examples of which can be perceived not only in terms of utilitarian products but mainly as markers of contacts and evidence for diffusion.

Keywords: pottery, cultural diffusion, Late Neolithic and Early Bronze Age, Masovia and north-eastern Poland

Introduction

Despite being penetrated by agricultural and pastoral societies in the Late Neolithic and Early Bronze Age, north-eastern Poland and a major part of Masovia still remained dominated by groups belonging to the sizable East European circle of cultures with hunter-gatherer economies.¹ Therefore, this area became not so much a frontier between the two economic systems, but rather an extensively mixed zone which, in many cases, provoked mutual contacts and fostered relations between individuals and groups, as reflected in artefacts bearing evident traits of cultural syncretism. This is most clearly seen in pottery, which is also the basic material in the identification process.²

The lifestyle in the area was characterised by mobility connected with a hunter-gatherer or pastoral economy. This led to unstable settlement activity and the tempo-

rary nature of residential and economic structures, also resulting in a limited number of artefacts found at such sites. The preference for dune-type sites shown by the societies of that period also brought important but negative consequences for archaeological research. Factors such as light sandy soil, recurrent precipitation and the detrimental activity of humic acids led to the almost total decomposition of organic remains after centuries of exposure. This is particularly unfavourable for the establishment of chronology and prevents conclusive dating of archaeological sources, not to mention the absence of data associated with the economy or funerary rituals.

For the reasons listed above, pottery seems to be the only relatively reliable source of information. In most cases, the vessels are not preserved complete but are represented by sherds of various dimensions. The most important among these are decorated fragments since

¹ Kempisty 1973; 1989, 301–326; Okulicz 1973, 66–87; Wiślański 1979, 319–336; Gedl 1989, 414, map 21; Józwiak 2003, 69–92; Manasterski 2009, 134–149; 2016, 24–27.

² Kowalczyk 1969, 32–34; Kempisty 1973, 56–61; Gumiński 1999, 61ff; 2001, 133ff; 2012, 95–98; Manasterski 2009, 30ff; 2010; 2012; 2016, 118–120.

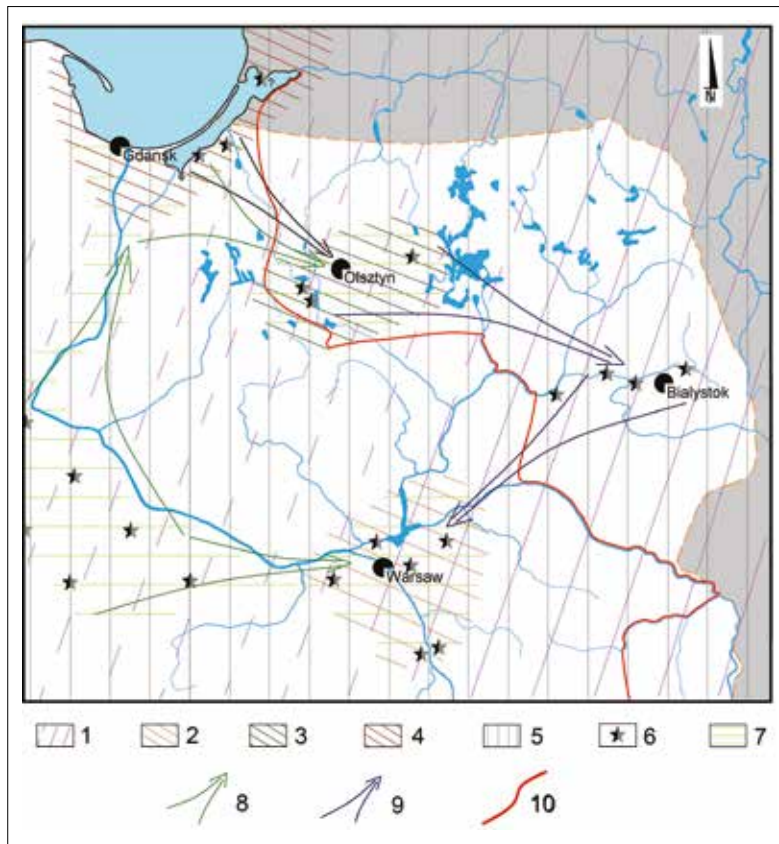


Fig. 1. Cultural entities in the Late Neolithic and Early Bronze Age and schematic directions of the 'expansion' of the Early Bronze Age styles of pottery.

1–3 – societies of the Neman cultural circle (1 – Neman group, 2 – Linin group, 3 – Ząbie-Szestno group); 4 – Rzucewo culture; 5 – ecumene and sub-ecumene of the Corded Ware culture; 6 – Bell Beaker pottery and pottery with a Bell Beaker stylistic component; 7 – ecumene and sub-ecumene of the Iwno culture in the area of emergence of the Trzciniec cultural phenomenon; 8 – direction of the influx of the Iwno culture style; 9 – direction of the influx of the Bell Beaker style; 10 – frontier of the North European and East European Plains.

decoration is often a signature that characterises the societies of different cultural groups,³ including those populating Masovia and north-eastern Poland in the Late Neolithic and Early Bronze Age (Fig. 1).⁴

The conclusive identification of complete vessel shapes proves much more problematic due to the fact that the pottery is usually heavily fragmented. It is also rather difficult or even impossible to draw conclusions on the makers' cultural affiliation based on the technological features of the vessels, particularly the composition of the clay body and the quality of firing since the makers mixed various technological traditions or even neglected technological regimes.

Methodology

It was assumed that an analysis of the stylistic features and their variations would enhance the understand-

ing of the processes that took place in the researched societies based on the following concepts: the assumption that pottery decoration was a signature that characterised different societies of various cultural groups,⁵ acknowledgement of the possibility that pottery also functioned in a non-utilitarian (stylistic) aspect,⁶ and Whallon's assumption that interactions between makers determined the nature of the diffusion of ideas and the stylistic practices within a given group or between different groups.⁷

The area of research was a territory occupied by Neolithic and para-Neolithic groups of various origins. Autochthonous hunter-gatherer populations of the Neman cultural circle were the most represented societies: the Linin group in central and north-eastern Masovia, the Ząbie-Szestno group in the Masurian Lake District, and the Neman group in north Podlachia, also identified, although to a relatively limited extent, in Masovia and the Masurian Lake District.⁸ They shared

³ Minta-Tworzowska 1994, 160–171, fig. 21, see further references therein.

⁴ Kempisty 1973, 35ff; 1989a, 262–272; 1989b, 301–326; Okulicz 1973, 66–133; Machnik 1978, 30–31; 1979, 339–343, 364–366; Wiślański 1979, 319–326, 331–336; Dąbrowski 1997,

90–92; Januszek, Manasterski 2012; Manasterski 2009, 30–31; 2016; Wawrusiewicz *et al.* 2015, 177–186; 2017, 159–176.

⁵ Minta-Tworzowska 1994, 160–171.

⁶ Watson 1977; Kobylińska 1980.

⁷ Cited after Kobylińska 1980, 197.

⁸ Manasterski 2016, 18–27.

comparable components and dynamics of change, leading to the emergence of societies of the Trzciniec type. In this part of the North and East European Plains, the end of the functioning of the Neolithic and para-Neolithic societies fell to the Early Bronze Age, in the formation phase of the Trzciniec culture as per its classical understanding. Thus the beginning and end of the transformations in this period can be indicated easily. On the other hand, the identification of the driving force – the initiator and catalyst of the process that contributed to the emergence of a new cultural value, the Trzciniec culture – poses serious problems. Circumstantial evidence derived from the analysis of ceramic sources from the area in question suggests that it was a substrate of allochthonous Bell Beakers. This article presents views on the identification and importance of various cultural components that participated in the development from the autochthonic Late Neolithic (para-Neolithic) pottery of the Neman cultural circle to the vessels of the Trzciniec type in the Early Bronze Age.

Pottery as a marker of cultural identification and evidence for diffusion

A generalised cultural image of the population occupying the area of north-eastern Poland and Masovia in the Late Neolithic and Early Bronze Age was compiled on the basis of research conducted so far, mainly using ceramic sources (Fig. 1). However, a more profound analysis, also supported by the latest discoveries, indicates that the image was much more complex and the changes were not the same everywhere. One of the most important insights was the realisation that this region was a distinct broad frontier zone of significant economic and cultural groups, within which syncretic societies emerged and functioned.⁹ The entities that took part in their formation were, on the one hand, hunter-gatherer cultures that had been functioning there for a long time and, on the other hand, the arriving agricultural and pastoral groups. These heterogeneous societies survived in the region until the macro-unification of the Trzciniec cultural circle, actively contributing to its formation.¹⁰ Scholars of the subject have been debating for decades on what culture-forming factors initiated this process. The strong influence of the Early Bronze Age cultures, especially the Iwno culture, is the most frequently mentioned driving force.¹¹ Alternatively, looking from a different perspec-

tive, the impact of the *Riesenebecher-Trzciniec* cultural package can also be considered as such.¹²

Nevertheless, the image of the transformations taking place to the east of the Iwno culture and the group's contribution represented so far have been subject to change as a consequence of both recent discoveries and a re-analysis of the older ones. Pottery plays the most significant diagnostic role in this case. The vessels in question are characterised by the presence of features which are typical of pottery created by the para-Neolithic, Late Neolithic, and Early Bronze Age societies occupying this area, as well as by syncretism reflected in various mixtures of different components, together with their non-homogeneous alterations, which, in extreme cases, display singular eclectic characteristics.¹³

Cultural components identified in pottery made in the Late Neolithic are either absent in the pottery of the Trzciniec cultural circle, which would suggest that their message became obsolete, or are still visible but to a varying degree, functioning as an 'evolutionary' link in the perception of progressing transformations. The stylistic features of these vessels are their most important distinctive attributes – their shapes combined with decoration. If only their fragments are available for analysis, the motives and patterns are the main carriers of information while the shaping techniques convey less information. Technological parameters are of secondary importance, as in this period traditional technologies associated with various cultural entities were abandoned.

The stylistic features of this pottery include:

1. the presence of decorative motives typical of the Neman culture: motifs made by stamping, with a furrow stitch, as well as perforations (Fig. 2) which evolved towards the pseudo-zone and pseudo-zone-metope patterns (Fig. 3);
2. the presence of decorative motives typical of the style characteristic for the Corded Ware culture and post-Corded Ware culture societies (Fig. 4), as well as their mixture with a para-Neolithic component which led to the emergence of one of the groups of the Linin style (Fig. 5);
3. the presence of decorative motives typical of the Bell Beaker culture style (Fig. 6) and their combination with a para-Neolithic component which led to the emergence of one of the groups of the Linin style (Fig. 7);
4. the presence of decorative motives of the late Linin style that were gradually enriched with early Trzciniec features which could be classified as the

⁹ Józwiak 2003; Czebreszuk 1998; Koško, Klochko 1998; Makarowicz 2001; Manasterski 2009; 2016.

¹⁰ Kadrow 1998, 407; Koško, Klochko 1998; Manasterski 2009, 148–149; 2016, 136; Makarowicz 2010, 24.

¹¹ Makarowicz 1998, 142–157; 2010, 24.

¹² Czebreszuk 2001, 150–169.

¹³ Manasterski 2009, 62–81; 2014a; 2016, 114–120; Wawrusiewicz *et al.* 2017, 159–176.

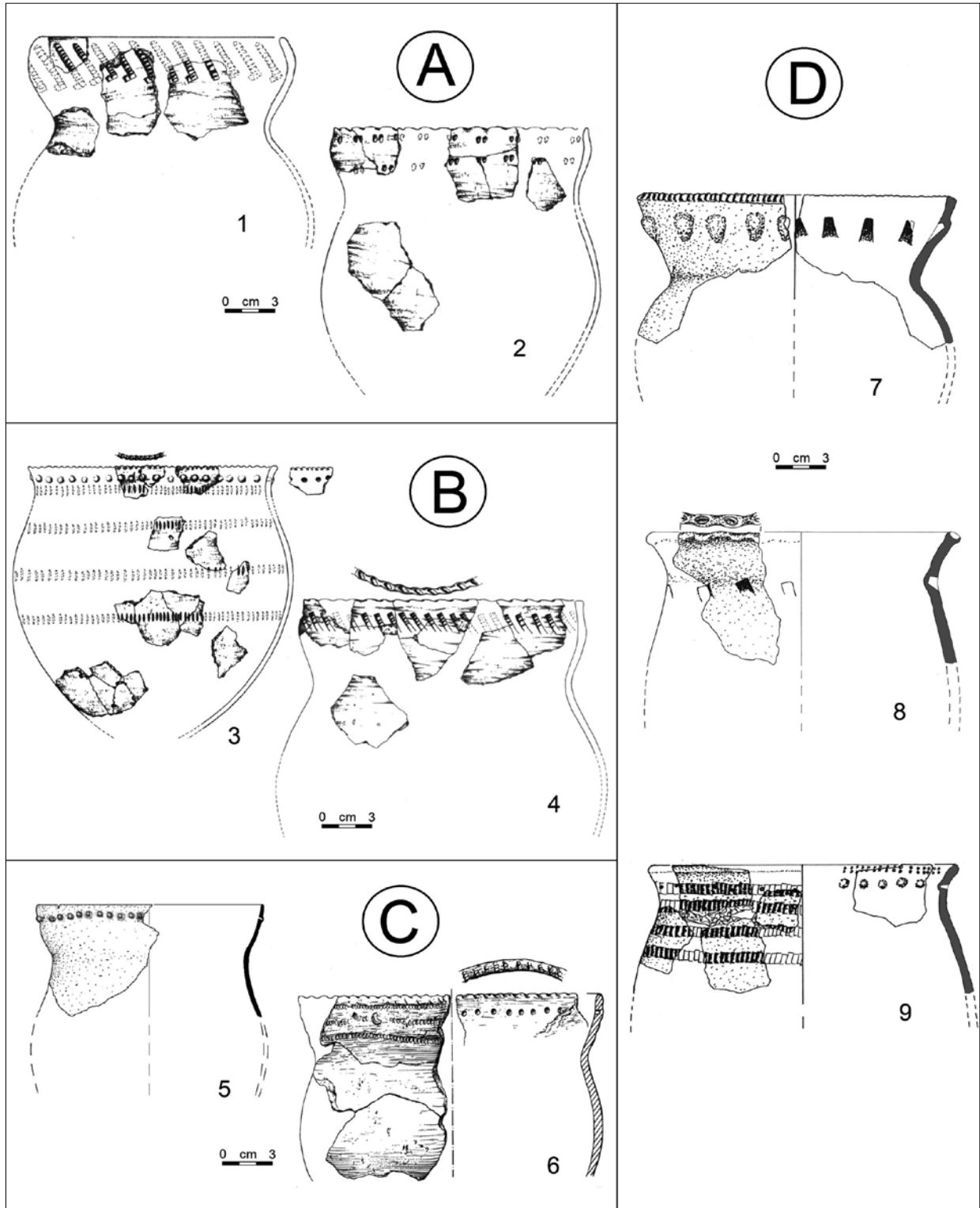


Fig. 2. Classic Neman vessels: A – north Podlachia, B – frontier of Masovia and Podlachia, C – Masovia, D – Masurian Lake District; 1–2 – according to Wawrusiewicz 2011, figs 4.1, 4.7; 3–4 – according to Wawrusiewicz *et al.* 2015, figs IV.8.1, IV.13.2; 5 – according to Manasterski, Januszek 2011, fig. I.5; 6 – according to Kempisty 1973, fig. XIX.1; 7–9 – according to Manasterski 2009, figs 39.8, 90.2, 21.6 (modified by D. Manasterski).

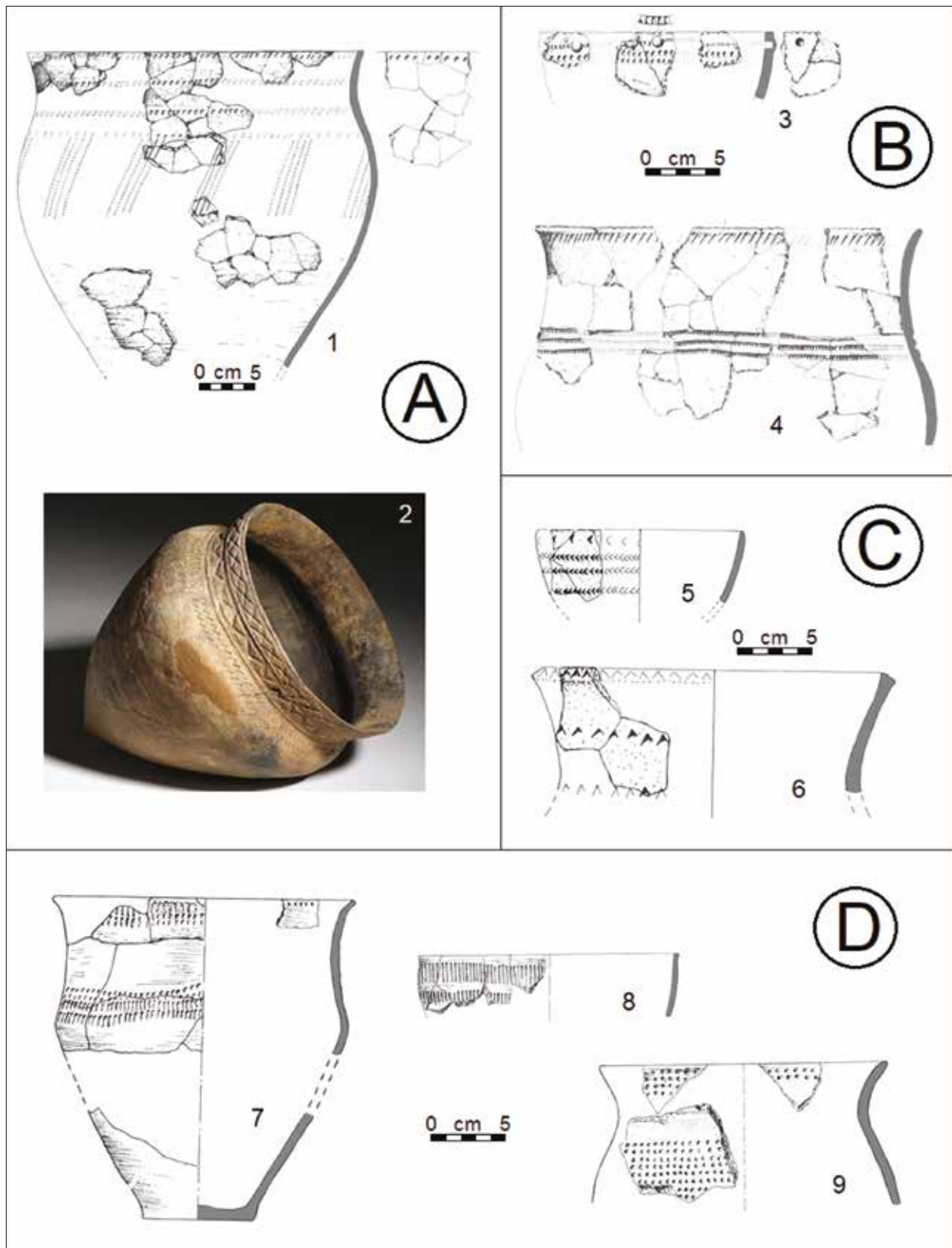


Fig. 3. Late Neman vessels: A – north Podlachia, B – frontier of Masovia and Podlachia, C – Masurian Lake District, D – Masovia; 1 – according to Wawrusiewicz *et al.* 2015, fig. 70; 2 – from the collections of the Podlasie Museum in Białystok, photo. A. Wawrusiewicz; 3–4 – according to Wawrusiewicz *et al.* 2017, figs V.66, IV.22.1; 5–6 – according to Manasterski 2009, figs 33.2, 33.4; 7–9 – according to Kempisty 1972, figs XXVI.20, XX.1, V.11 (modified by Manasterski).

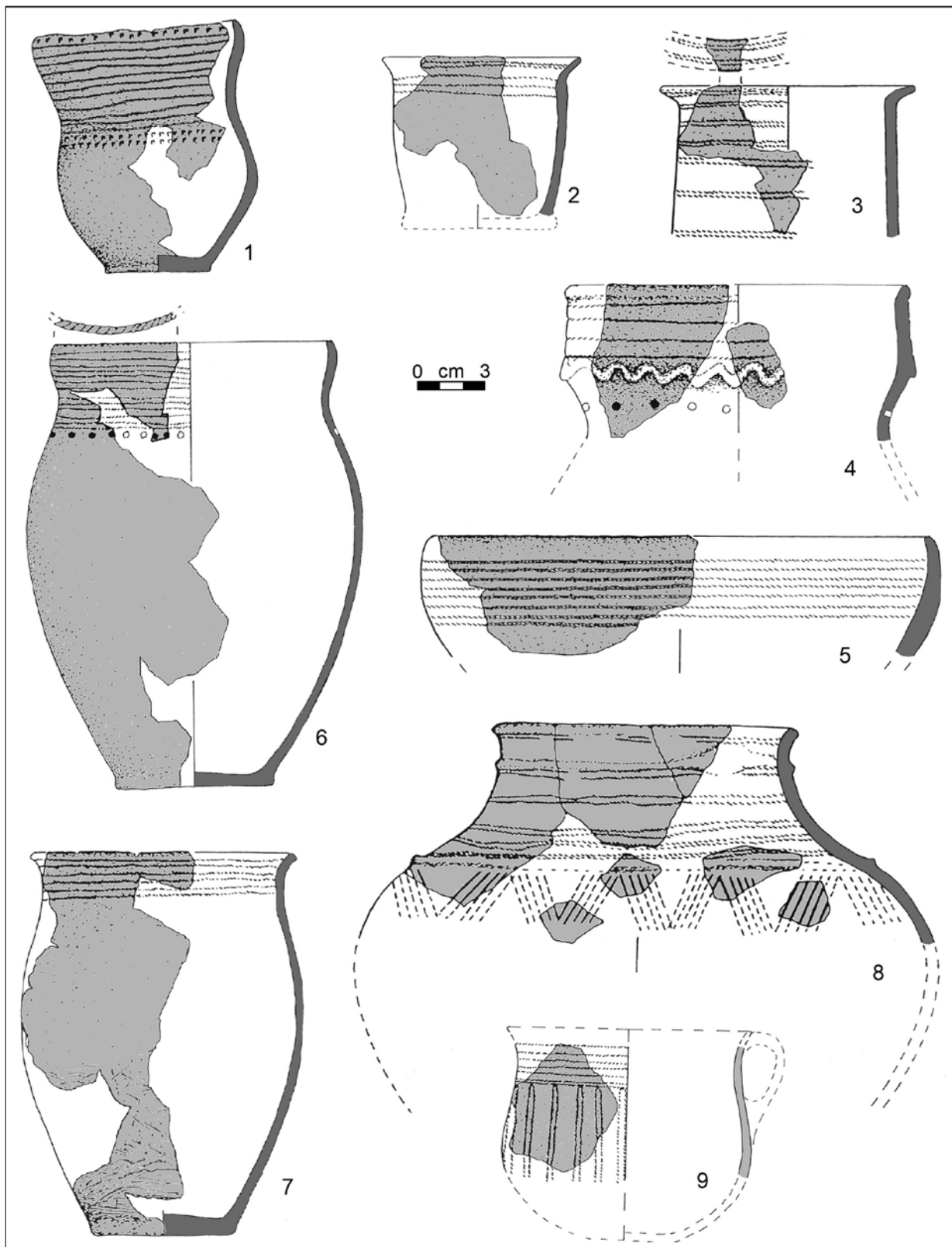


Fig. 4. Corded Ware culture and epi-Corded Ware culture vessels from the Masurian Lake District (according to Manasterski 2009, figs 54.10, 93.2, 84.3, 21.1, 38.5, 101.4, 1.7, 47.9 – modified by D. Manasterski).

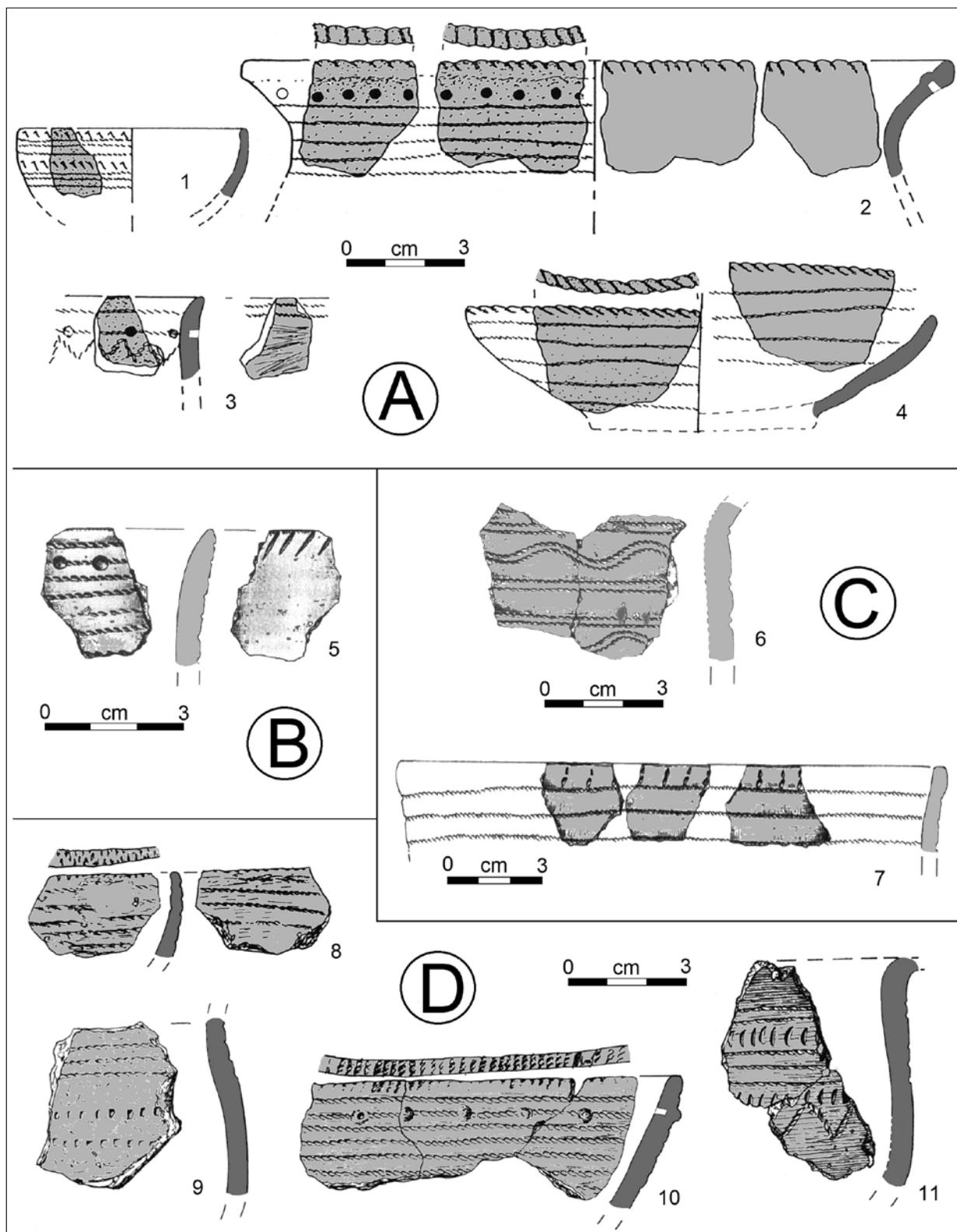


Fig. 5. Linin style vessels with a Corded Ware culture component: A – Masurian Lake District, B – north Podlachia, C – frontier of Masovia and Podlachia, D – Masovia; 1–4 – according to Manasterski 2009, figs 43.4, 48.10, 84.10, 23.2; 5 – according to Wawrusiewicz *et al.* 2015, fig. 58.1; 6–7 – according to Wawrusiewicz *et al.* 2017, figs III.60.5, III.60.6; 8–11 – according to Kempisty 1972, figs XIV.5, XXXIII.4, XIX.8, XI.11 (modified by D. Manasterski).

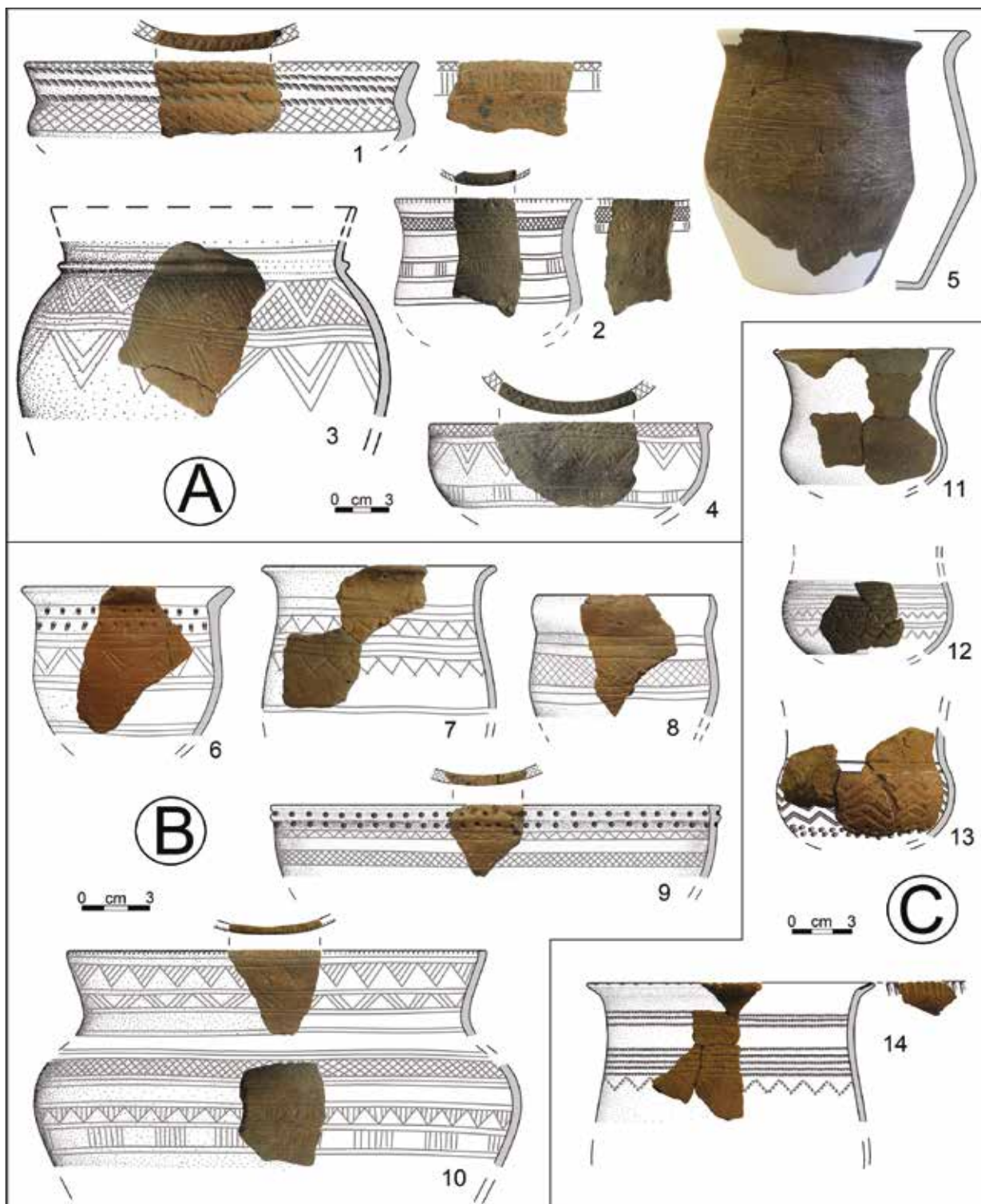


Fig. 6. Bell Beaker vessels: A – north Podlachia, B – Masurian Lake District, C – Masovia; 1–4 – according to Manasterski 2016, figs 8.1, 3.1, 6.1, 8.2; 5 – according to Wawrusiewicz *et al.* 2015, fig. 107.A; 6–14 – according to Manasterski 2016, figs 18.2, 18.1, 11.2, 15.1, 17.1, 22.1, 23.1, 22.2, 26.1 (modified by D. Manasterski).

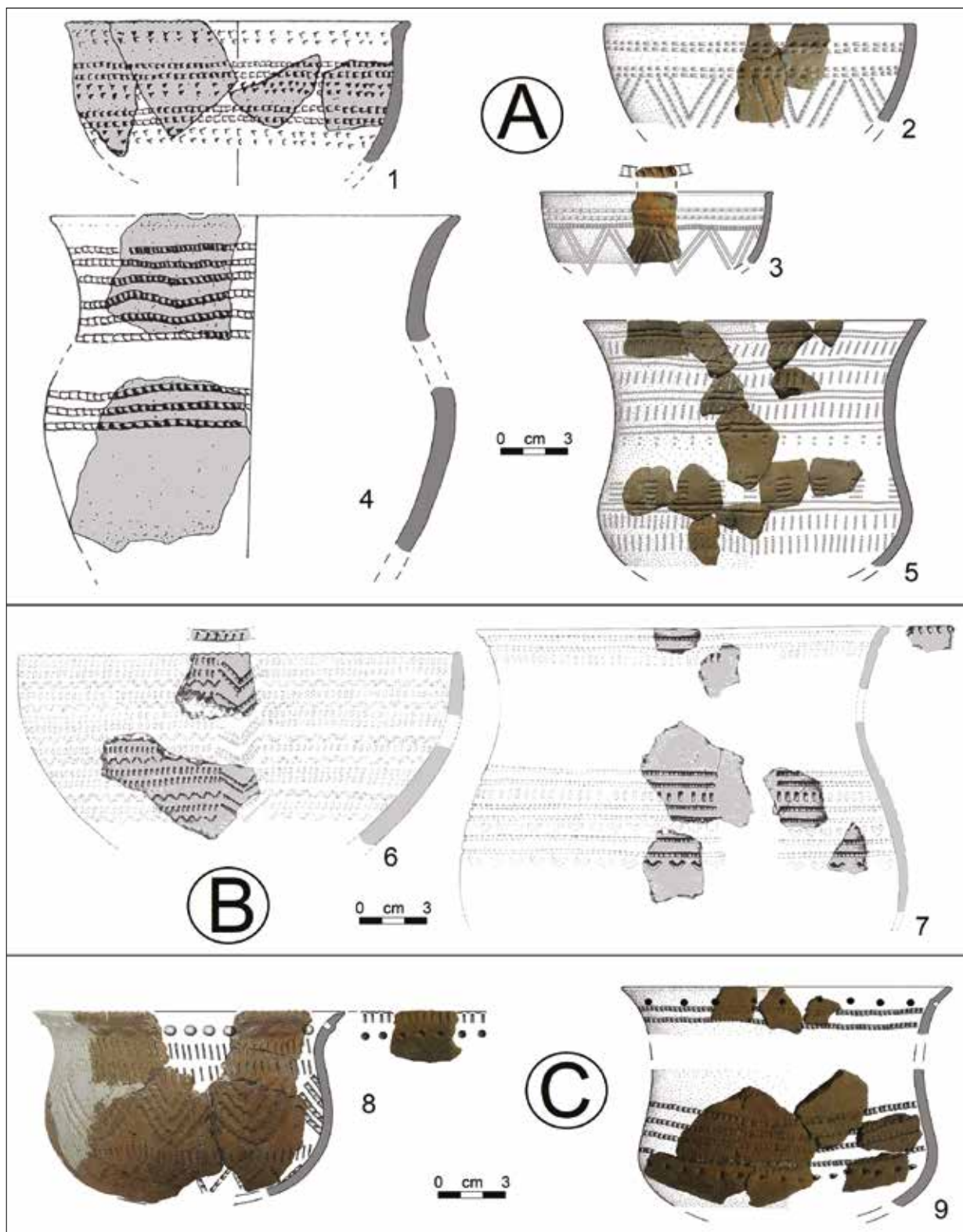


Fig. 7. Linin style vessels with a Bell Beaker component: A – Masurian Lake District, B – frontier of Masovia and Podlachia, C – Masovia; 1–5 – according to Manasterski 2009, figs 31.3, 16.3, 16.2, 35.6, 11.1; 6–7 – according to Wawrusiewicz *et al.* 2017, figs IV.18.2, IV.18.1; 8–9 – according to Manasterski 2016, figs 25.3, 26.2 (modified by D. Manasterski).

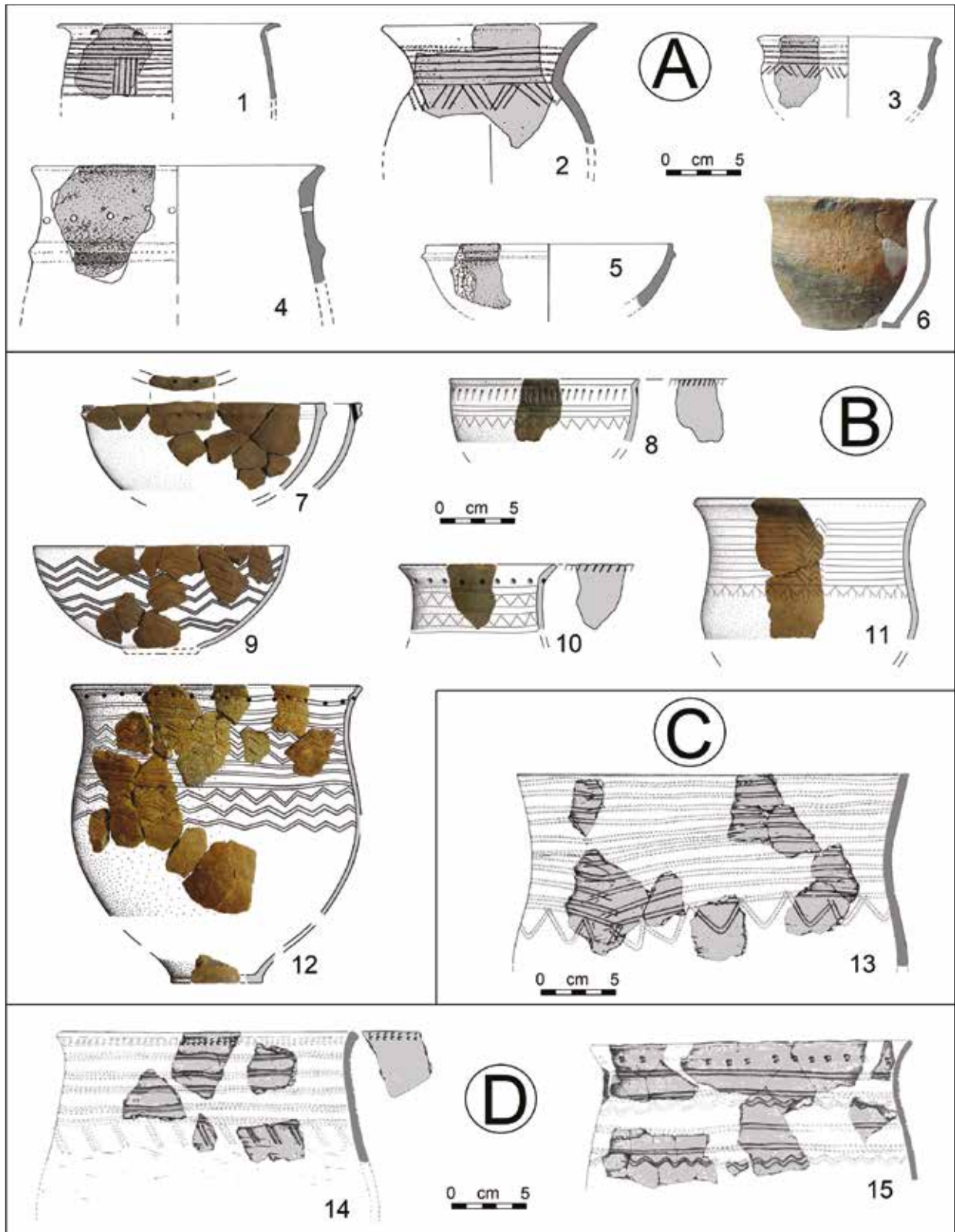


Fig. 8. Vessels representing Linin, proto-Trzciniac and early Trzciniac styles: A – Masurian Lake District, B – Masovia, C – north Podlachia, D – frontier of Masovia and Podlachia; 1–5 according to Manasterski 2009, figs 87.6, 11.7, 43.2, 95.3, 29.1, 17.2; 6–12 – according to Manasterski 2016, figs 24.1, 25.1, 24.2, 23.2, 28.2, 27.2; 13 – according to Wawrusiewicz *et al.* 2015, fig. 104; 14–15 – according to Wawrusiewicz *et al.* 2017, figs III.54.1, III.59.3 (modified by D. Manasterski).

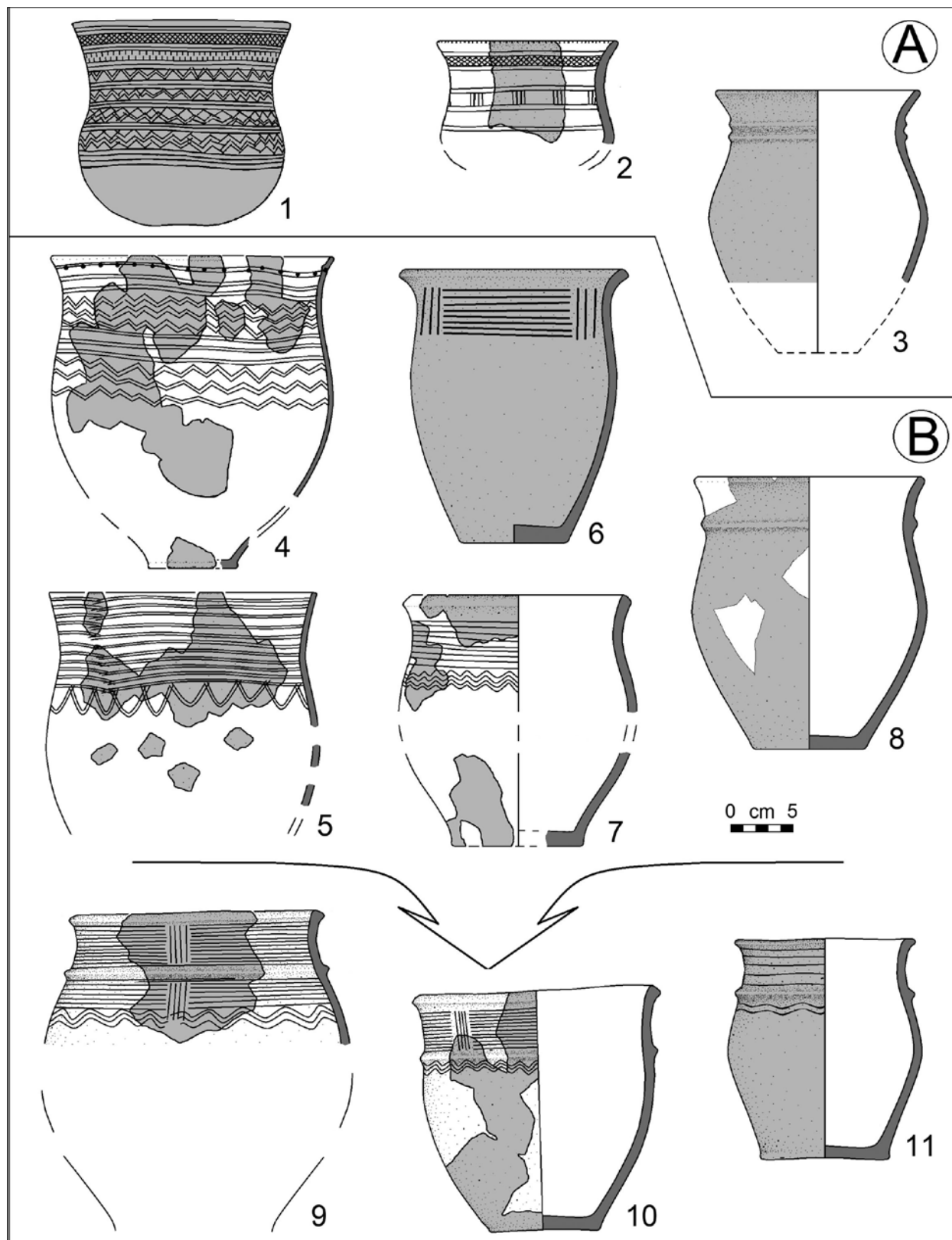


Fig. 9. Diagram of stylistic transformations of pottery associated with the diffusion of the Bell Beaker style in the middle and lower Vistula River basin – *Riesenebecher-Trzciniec* in the west and *epi-Bell Beaker Linin-Trzciniec* in the east: A – initial forms (bell beaker and *Riesenebecher*), B – intermediate and final forms (according to Manasterski 2016, fig. 42 – modified by D. Manasterski).

proto-Trzciniec style (Fig. 8) and which later reached the form of the classic Trzciniec style (Fig. 9).

Conclusions

As a result of the analysis, two regularities can be observed in this process. These could be regarded as crucial to understand the formation of a new cultural phenomenon in this region, namely the Trzciniec culture. Para-Neolithic societies subjected to the influence of the Corded Ware culture and Bell Beakers in the Late Neolithic were its foundations. Although Corded Ware culture artefacts are much more frequent than objects associated with the Bell Beaker culture, the influence of the latter was much more pronounced and could be seen, even if to a limited extent, in late Neman pottery (Fig. 3), and mainly in late Linin as well as proto- and early-Trzciniec vessels (Figs 8, 9). Interestingly, there was an additional contribution of the Iwno culture from the other side of the Vistula river in the Early Bronze Age (Fig. 1),¹⁴ which is most evident in the pottery style of the Linin and Ząbie-Szestno groups, i.e. the western branch-

es of the Neman cultural circle, but it cannot be traced in the Neman group.¹⁵

It should be emphasised that the diffusion process did not progress in the same manner across the whole area. Apart from differences at the macro-regional level (latitude), there were differences between the micro-regions resulting from the various degrees of absorption and processing of external factors by the local groups functioning at the time. As a consequence, there is a wide range of syncretic styles in pottery, from those produced by the most progressive societies, characterised by nearly identical copies of foreign patterns, to items made by the most conservative groups which did not accept new styles or adopted them only to a limited extent. The planigraphic study of the distribution of the sites leads to the conclusion that the former were located in the areas of waterways that ensured good communication: convenient river systems such as the Vistula and Narew rivers and their tributaries in Masovia and north Podlachia or the systems of rivers and lakes in the Masurian Lake District. Pottery made by the most conservative groups is known from areas isolated with natural barriers, e.g. large marshes and swamps, such as the waterlogged areas of the Biebrza River basin in north Podlachia.

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¹⁴ Kempisty 1973, 58–61; Manasterski 2009, 124, 129–132; 2010; 2014b, 89–93; Makarowicz 2010, 15ff.

¹⁵ Józwiak 2003, 190–195; Manasterski 2009, 74–81; 2014a, 45–47; Wawrusiewicz et al. 2017, 159–176.

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WOOD TAR PRODUCTION WITHOUT THE USE OF CERAMIC VESSELS: EXPERIMENTAL ARCHAEOLOGY IN GRODZISKO ŻMIJOWISKA

ABSTRACT

Several pits, the remains of wood tar production using the so-called 'vessel-less method', were discovered in the Lublin region. They contained objects related to the early Middle Ages. These discoveries were used as the base for experiments run in 2013 in the experimental archaeology centre at Grodzisko Żmijowiska. The first experiment involved the acquisition of wood tar from birch bark, while the other attempts were aimed at extracting tar from pine stumpwood. The experiments were conducted in a shallow pit that was plastered with clay and had a small depression at its bottom used as a container for the tar, separated from the pit by a clay strainer. The raw material gathered in the pit was covered with a clay

dome. When the dome was dry, it was slowly heated up with burning wood to the right temperature which was checked inside the dome with a thermocouple. Both processes were conducted successfully. The results were compared with experiments focused on the production of wood tar using the two-vessel method known in the early Middle Ages. The comparison showed that the vessel-less method is less economical due to the amount of fuel used and almost three times less efficient in terms of the raw material to final product ratio. However, it is very simple technically and allows the effective production of wood tar.

Keywords: archaeological experiments, distillation of wood tar, tar production without the use of ceramic vessels

Introduction

In human history, the production of wood tar has been known since the Palaeolithic period and was widely practiced until the mid-20th century. Several methods were used for tar acquisition, beginning with the so-called vessel-less method where only an earthen cavity was used. In later periods, the one-vessel and two-vessel methods were employed.

In the western regions of the Lublin province, the oldest object related to the production of wood tar was discovered in 1998 in Las Stocki in a settlement of the Funnel Beaker culture. It comprised a large earthen pit containing pieces of charred birch bark, which seemingly served for the acquisition of wood tar using the

vessel-less method.¹ Although a similar object had been discovered in 1981 in Wąwolnica in a settlement of the Volhyn-Lublin Painted Pottery culture, the research project authors deemed the object to be undated.² The first object of this kind discovered in the Lublin region and dated to the early Middle Ages was a wood tar pit found at Łopiennik Dolny, a find which we were directly interested in given that the chronological period was compatible with the archaeological experiments conducted at the branch of the Vistula River Museum in Kazimierz Dolny at Grodzisko Żmijowiska.³ However, the immediate cause of our trials regarding the experimental acquisition of wood tar using the vessel-less method was the discovery, in 2011, of a group of fifteen wood tar pits

¹ Nogaj-Chachaj 2001.

² Zakościelna 1981.

³ Zakościelna, Gurba 1997.

at the multi-cultural Site 6 in Bogucin.⁴ These showed a characteristic cylindrical funnel shape and measured, on average, 1.5 metres in diameter and 1.4 metres in depth. They were dated to the 8th and 9th centuries AD. Due to the further discoveries at this site of characteristic pottery fragments with openings at the base, researchers have been inclined to interpret these pits as the remains of wood tar production using the two-vessel method. However, this does not exclude the possibility that, following the baking of the loess base, a vessel-less process could have been employed in such facilities.⁵

As part of the Experimental Archaeology Workshops which have been run at Grodzisko Żmijowska since 2005, we have been dealing with the extraction of wood tar, i.e. the so-called 'dry distillation' of birch bark and wood tar using the two-vessel method. This method employs two vessels, one placed on top of the other. The upper vessel, filled with birch bark or pine stumpwood and equipped with a bottom with special openings, stands upon the lower vessel, which is dug into the bottom of the wood tar pit. By being heated with fire, the contents of the upper vessel char, thus producing tar and wood gas. The tar flows into the lower vessel which acts as a radiator, while the wood gas burns out through leaks in the upper vessel in the form of gas flames. Through numerous trials we were able to master this process to perfection, controlling its course via professional thermometers with a thermocouple which facilitated the rapid connection of emerging internal phenomena with the stages of firing and temperature management.⁶

The successful use of the two-vessel method encouraged trials employing other methods of acquiring wood tar and charcoal. The discovery in Bogucin as well as the earlier attempts to reconstruct the acquisition of wood tar using the vessel-less method, conducted by the Institute of Archaeology at the Nicolaus Copernicus University in Toruń⁷ and Museumsdorf Düppel in Berlin,⁸ have provided us with a foundation both in terms of the sources and methodology.

Experiments

During the Experimental Archaeology Workshops run in 2013, attempts were made at reconstructing this type of earthen pit and using it to distil wood tar. Due to the limited access to the required raw material (birch bark), the experimental pit was significantly reduced in size compared to those discovered in Bogucin. After a hollow with a diameter of 65 to 70 and depth of 30

centimetres was dug in a sandy bottom, the cavity was plastered with thin clay which had been mixed with sand especially for this purpose. Inside the hollow, a cylindrical depression with a diameter of 12 and depth of 20 centimetres was made. This created a container for the tar to flow into. In order to separate the pit from the flowing tar, as well as to prevent its contamination, a clay 'strainer' with four openings was made, thus separating the earthen pit from the container. The edges of the pit were surrounded by stones (Fig. 1). It was necessary to dry and heat the prepared structure by burning a large fire over it. However, despite almost 20 hours of drying and 2.5 hours of heating, the container still remained moist at the bottom. Minor cracks in the hollow were filled in with clay and baked once again. This time, the fire was started by lighting small pieces of wood within the container. The embers fell into the bottom of the hollow and into the container and remained there until the following day. This allowed to achieve the effect of baking the pit's surface layer which prevented the absorption of the produced tar into the pugging of the cavity itself.

After the hollow was cleaned from ash and charcoal, the separately dried and baked clay 'strainer' was set into it before birch bark was placed. Along with another layer of bark, a clay dome was formed which tightly sealed the whole pile of bark. This task was conducted in such a way that the contents of the pit simultaneously served as a support for the still-soft dome. Tightly wound strips of birch bark were placed inside while large pieces of bark were laid on the outside, i.e. in contact with the clay. This way, the layer of clay could be thinner (Fig. 2). The ring of stones on the perimeter of the pit greatly facilitated our work by preventing the movement of the still-fresh dome. When the cavity was ready, the lighting of the fire began with the careful drying of the dome, which took approximately 2.5 hours. The temperature within the pit reached 80 °C. Following the sealing of any remaining cracks, fire intensity was increased. The dome was entirely covered by the fire in which pine wood was used as fuel. Despite a large fire being maintained, the rise in temperature was slow. After another two hours, the thermocouple indicated a temperature of just 100 °C, which is too low for the distillation of wood tar. However, there was a strong smell of wood tar around the pit which may have indicated uneven heating of the contents. Moreover, no flames of wood gas coming from the surface were observed, which are highly characteristic of the two-vessel method and whose production accompanies the dry distillation of wood.

⁴ Matyaszewski 2012.

⁵ Matyaszewski 2012, 22.

⁶ Wasilczyk 2014.

⁷ Osipowicz 2004.

⁸ Todtenhaupt, Kurzweil 1996.



Fig. 1. Wood tar earthen pit before drying (photo by K. Wasilczyk).



Fig. 2. Wood tar earthen pit during the filling and building of the dome (photo by K. Wasilczyk).

The very slow increase in temperature prompted a change in the wood used as fuel, which was initiated by the placement of thick dry pieces of oak bark. This was followed by a sudden increase in temperature which rose to 300 °C within one hour. However, we would be cautious about drawing the conclusion that it was the change in fuel that sped up the process. We are rather inclined to believe that the thermocouple had been put in the wrong place: just where the thickest and most tightly-packed pieces of birch bark were found. Perhaps these pieces could have caused the uneven course of char-

ring. After 5.5 hours of burning, the temperature reached 405.2 °C; after 6 hours we ceased adding any more fuel to the fire and left the whole pit to cool down. The course of the rise in temperature is shown by the 'wood tar from birch bark' curve (Fig. 3).

The next day, the dome over the pit was still slightly warm. With the aim of acquiring a cross section, the cavity, along with the dome, was cut through and dismantled, followed by an examination of half of the structure. Charred bark occupied one third of the capacity of the pit. While extracting the charcoal, we found out that

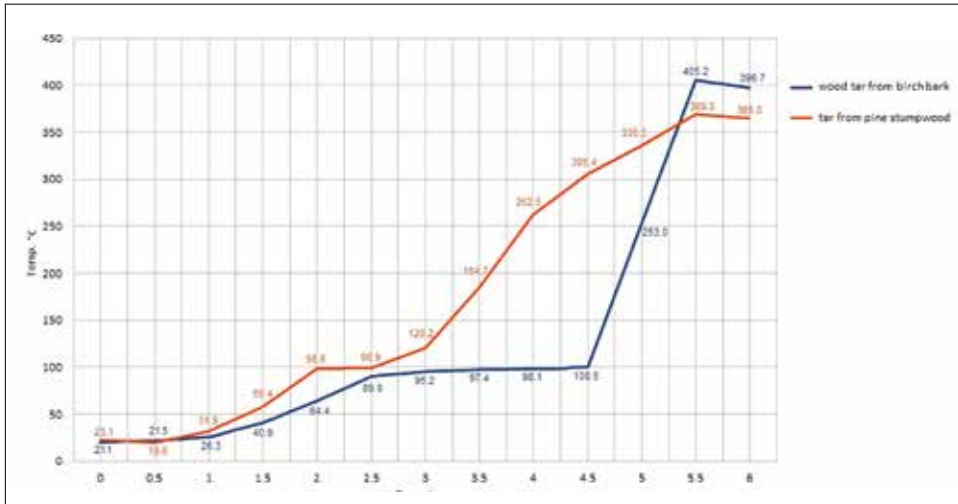


Fig. 3. Graph of temperature during the process of distilling wood tar (compiled by P. Lis).



Fig. 4. Wood tar earthen pit after emptying (photo by K. Wasilczyk).



Fig. 5. Filling of the inside of the pit and dome with pine stumpwood (photo by K. Wasilczyk).

some of the birch bark (approx. 5 to 10%), which had been placed lowest on the grate, was not charred but covered in wood tar with the consistency of soft modelling clay. With the help of a spoon, the tar was extracted from the container (Fig. 4). The wood tar possessed a uniform, soft, plastic consistency, without any distinguishable cracking of the pitch or any wood tar 'water'. Since the amount of bark used was 3.6 kg while the amount of tar acquired was 0.39 kg, the efficiency rate of the process amounted to 11.3%.

After three days, the experimental distillation of wood tar was repeated with one difference: the contents comprised so-called pine stumpwood, i.e. pieces of dried pine roots saturated with resin (Fig. 5). Birch bark was only used to cover the surface of the stumpwood to make sure that pieces of wood didn't stick to the pugging and that the thickness of the pugging matched that of the remaining half of the dome. The course of the process was very similar to the previous experiment. Following the drying of the dome, a large fire was continually fuelled with pieces of oak bark, i.e. waste wood but of high calorific value. The duration of the fire was the same, namely 6 hours. The change in temperature is shown by the 'tar from pine stumpwood' curve (Fig. 3). The increase in temperature was gradual, without sudden spurts, hence the optimal conditions for the distillation of wood tar were created. In both curves, the slowdown in temperature increase at about 100 °C is related to the evaporation of water contained within the contents of the pit.

Regarding external manifestations, the smell of tar appeared during the third hour of firing. Although in neither process was the appearance of gas flames observed, during the time when these potentially could have appeared the entire dome was covered by a large fire. This not only hindered such observations but even made them impossible. In order to judge the course and progress

of the process, based on external indications alone and without the use of a thermocouple, the appearance of the smell of tar needs to be taken into account. However, this is not enough to control the process efficiently. In the vessel method, the indications are more numerous and include: the blackening of the pugging of the upper vessel; the burning of the mound; the smell of tar being distilled; as well as the appearance and disappearance of gas flames. These indications allow for sufficiently precise control and assessment of the course of the process while the disappearance of gas flames is a sign that the distillation has come to an end.

Conclusions

The two-vessel method for the distillation of wood tar appeared later and is undoubtedly more economical. It uses far less fuel while the process is significantly more efficient. The more primitive method of acquiring tar in wood tar earthen pits without the use of ceramic vessels does not enable precise control of the process. It is also less economical, uses more wood while the efficiency of the process (11%) is worse than that of the vessel method (30%). However, it, too, is effective in that quite an impressive amount of wood tar was acquired. Perhaps with time, by further repeating the experiment, it would be possible to observe other indications of the process occurring within the pit and relate these to process stages.

It is our hope that the continually developing activities in the field of experimental archaeology conducted at the branch of the Vistula River Museum in Kazimierz Dolny at Grodzisko Żmijowska will allow us, with time, to gain greater control and better knowledge of the processes involved, as well as to answer many more questions regarding the technology of historical tar production.

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RIVER TRANSPORT IN MESOPOTAMIA (5900–539 BC)

ABSTRACT

Water transport was the earliest mode of transport in ancient Mesopotamia. Thanks to the Tigris and Euphrates rivers, which run along the whole length of Mesopotamia, and a network of canals, river transport facilitated communication, exchange, as well as cultural and military contacts between towns. This paper focuses on the riverine transport in Mesopotamia and its development from the Ubaid (5900–4200 BC) to the Neo-Babylonian period (626–539 BC). The importance

of river transport in Mesopotamia is discussed, considering its role as a means of communication, exchange of goods and ideas, and a factor influencing the socio-political transformation in the region. Watercraft is discussed to the full extent, with particular emphasis on different types of ships and their functions. The chronological development of watercraft in Mesopotamia is also analysed based on boat models, cuneiform texts, and representations of boats in the art.

Keywords: boat, ship, Euphrates, Tigris, river, transport, Mesopotamia

Introduction

River transport was the main means of communication in Mesopotamia. This was a region dominated by the Tigris and Euphrates rivers and their tributaries, as well as by a large number of artificial canals in the southern part of the region. Rivers were crucial for living in Mesopotamia – they afforded not only a lifeline for human settlement but also provided an enormous transportation and exchange system. From the beginning of civilisation, the inhabitants of Mesopotamia were interested in navigating rivers as an easy and economical way to travel, communicate, and circulate goods.

The present paper discusses the development of river transport in Mesopotamia from the Ubaid period (5900–4200 BC), when the earliest evidence of watercraft is available, to the end of the Neo-Babylonian period (626–539 BC). The major objective is to make a synthesis of riverine transport in Mesopotamia with a special reference to ship typology and its development over time. Another purpose is to investigate the materials and techniques employed in shipbuilding and the function played by boats in the transport of goods and ideas.

River transport allowed Mesopotamian towns to import the necessary commodities in bulk from faraway resource areas across a vast network of waterways. This means of transport had many advantages: it was cheap and fast, as it would shorten journey times and transport costs. An important reason behind the popularity of water transport was also the fact that annual flooding regularly inundated immense areas of the country. In the flooding season, inhabitants of Mesopotamia focused on river transportation. One of the inscriptions mentions that “when the road was good they walked and when it was not good they sailed by boat”.¹

Water transport also played a role in the socio-political transformation of the region. As a common means of communication, it had an integrative and transformative effect on the societies of Mesopotamia, contributing to the spread of ideas and socio-political processes. Waterways were important factors in several of the major transformations of the region, including the Ubaid phenomenon or the urban revolution and state formation in the Uruk period.² Data on river transport in Mesopotamia includes boat models, representations of boats or boat transport in art, and cuneiform records.

¹ Oppenheim 1956, 94.

² Carter 2012.

Materials and techniques

The materials needed for boat-building mainly included reed, wood and bitumen. Perhaps the most abundant resource was reed from the marshes of southern Mesopotamia. It was a common material used not only for boat construction, but also for manufacturing baskets and mats, house construction, and as fuel or fodder.

Numerous Ur III texts specify the use of reeds for boat-building.³ In one of the texts, 4260 bundles of *šid*-reed and 12384 bundles of *izi*-reed are mentioned as material used for building a Magan boat.⁴ The bundled reed boats used by the Marsh Arabs of southern Iraq were coated on the exterior with bitumen.⁵ Cuneiform texts also refer to caulking ships with bitumen, especially the vessels of Magan and Dilmun.⁶ This coating is said to provide extra strength to the wood or reed and to have a waterproofing effect. At the Ubaid-related site of H3, located in modern-day Kuwait, a number of barnacle-incrusted bitumen pieces with reed impressions were uncovered which are interpreted as fragments of such waterproof coating of reed-bundled boats.⁷

Wooden plank-built boats were also used in Mesopotamia. Economic and religious texts reveal that some boats were built almost entirely of wood, while others were constructed of a combination of wood and reed. The most important type of wood was possibly the local pine or fir tree. Poplar, willow and palm trunks were also widely used for boat-building and accessories. Some of the trees, like cedar, cypress, mulberry and laurel were imported from the mountains of Lebanon, Dilmun, and Umiluha.⁸

Enormous quantities of palm-fibre and palm-leaf ropes are mentioned in cuneiform records, suggesting that at least some of the watercraft was sewn or stitched. The Ur III texts list over eight tonnes of palm-fibre rope and one tonne of palm-leaf rope, together with six tonnes of fish oil probably used as an anti-fouling agent on the ropes.⁹ Another text affirms the use of 59290 wooden pegs for the boatyards of Umma during the Ur III period, indicating the use of wooden pegs in combination with stitching.¹⁰ Stitched plank vessels were traditionally made shell-first, with the frame inserted afterwards. Two techniques were employed in ancient wooden shipbuilding.¹¹ In the shell-based technique, the outer hull is construct-

ed first, after which floors, frames and other supports are inserted to provide extra strength. In the skeleton-based technique, a structure consisting of a keel, a stern and a stern post, and a number of frames is erected first. Next, hull planting is assembled around the pre-erected skeleton structure.

Leather also appears in texts dealing with ship and boat outfitting. One of the texts mentions the construction of a wooden frame covered with leather, in three various colours, which involved the use of eighty-five skins on the boat of Amar-Sin.

Textual evidence

In the archaic texts from Uruk, an ideogram for 'ship' is already attested. The oldest boat-shaped symbols show a boat with high ends (Fig. 1).¹² The Sumerian term for 'boat' was *má*, while the term *má-gur* was also frequently used to identify sacred and ceremonial boats of the gods and kings. In Akkadian, 'boat' is known as *eleppu*.

The cuneiform texts concerning watercraft mention different functional categories of vessels, indicating that each ship was specialised to carry a specific cargo.¹³ The type of transported goods was the main reason for the differences in the construction of ships.¹⁴ There were ca. forty types of vessels, as estimated based on cuneiform texts.¹⁵ These include sailing boats, rental boats, store boats, fishing boats, fodder boats, wine boats, boats for dry bitumen, harbour boats, and war boats.¹⁶ Other uses of boats are also mentioned in written records: vessels which carry grain from the fields, silver-transporting boats, grain-transporting boats, and boats transporting apples. A text from the Old Babylonian period indicates that certain changes had to be made to a boat which had been used to carry dried bricks before it could be used to transport a tree trunk.¹⁷ While these terms reveal little about construction, they speak much about the uses of Mesopotamian watercrafts. Certain kinds of boats were named after geographical locations, including the Magan boat, the Dilmun boat, or the Mari, Agade, and Assur boats.

Ships used to transport passengers were called *GIS.MA'* *U5* in Sumerian and in Akkadian – *elep rakabu*. The structure of this type of vessel was unique in its

³ Waetzoldt 1992, 128.

⁴ Potts 1997, 107–117.

⁵ Ochsenschlager 1992, 67.

⁶ Potts 1995, 562.

⁷ Carter 2010.

⁸ Fadil 1989, 175–176.

⁹ Landsberger 1967, 7.

¹⁰ Potts 1997, 126–128.

¹¹ Mäkelä 2002, 26.

¹² Salonen 1939, 196.

¹³ al-Metwally 1994, 312.

¹⁴ Leemans 1960, 10.

¹⁵ Rashid 1981, 104.

¹⁶ Salonen 1939; Weszeli 2009, 161.

¹⁷ al-Hashemi 1981, 40; Oppenheim 1956, 93.

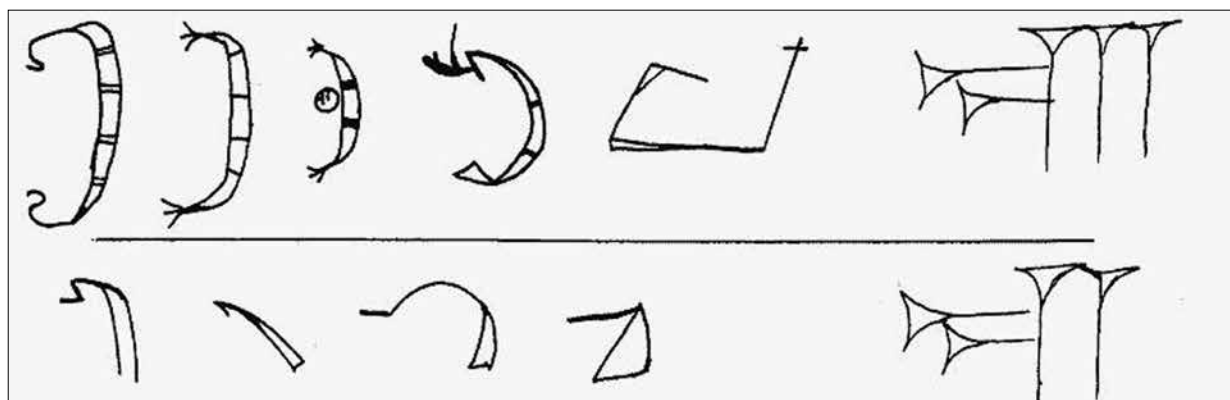


Fig. 1. Boat-shaped symbols in archaic script (after al-Hashemi 1981, 39, fig. 2).

Table 1. Types of ships.

	Ancient names	Translations
1	Malallu = gls MA-lal	Transport ship
2	Rukabu / rakubu / rakabu	Passenger transport ship
3	Eleppu muttabritu	Ship conveyor
4	Elep igri / Leppu Sa agurri	Dry brick ship
5	GIS MA2.SUM SAR (= eleppu sa sumi)	Ship transporting garlic
6	GIS MA2.IN.NU (= eleppu sa tibni)	Ship transporting hay
7	GIS MA2.GI (= eleppu sa qane)	Ship transported by the thorn
8	Elep Qarabi	War ship
9	Elep Tillate	Ship transporting soldiers
10	GIS MA2.SE (= eleppu sa se)	Barley ship
11	GIS MA2.SE.GIS.I3 (= eleppu sa samassammu)	Sesame ship
12	GIS MA2.ZI3 (D) (= eleppu sa qemi)	Flour ship
13	GIS MA2.ZU3.LUM (= eleppu sa sulupi)	Dates ship
14	GIS MA2.SAR (= eleppu sa sizabi)	Milk ship
15	GIS MA2.U2 (= eleppu sa sammi)	Herbal ship
16	GIS MA2.KU6 (= eleppu sa nuni)	Fishing vessel
17	GIS MA2.I3.GIS (= eleppu sa samni)	Margarine ship
18	GIS MA2. NINDA (= eleppu sa akali)	Bread ship
19	GIS MA2.SIR (= eleppu sa seri)	Meat ship
20	GIS MA2.SIG (= eleppu sa sapati)	Wool vessel

length. One of the texts mentions that the length of one of these boats was about 12.5 metres. The high intensity of river transportation prompted the creation of a new type of boat called the ‘rescue boat’, which would save people and their cargo during accidents on the Tigris or Euphrates rivers. Information available on warships indicates that the Sumerians and Babylonians did not know military ships (*elep qarabi*), and their watercrafts were only used to carry soldiers. The Assyrians used a variety of vessels to transport soldiers, horses, chariots and supplies across rivers, but they also produced ships specifically for military purposes. Assyrian naval warships were influenced by Phoenician watercraft.

Texts reveal little about boat construction, but they provide some information on their capacity. The watercraft ranged in size from 10 to 120 *gur*, some being as large as 360 *gur* (1 *gur* = 300 litres).¹⁸ Boats of 60 *gur* appear to be the most frequent, with 10-, 20-, and 120-*gur* boats also relatively common. During the Ur III period, texts from Ur (e.g. UET III 272) mention boats varying in size from 1 to 300 *gur*.¹⁹ Occasionally, a 60-*gur* boat at Lagash during the Ur III period could carry 150 talents of bitumen, while at Mari in the Old Babylonian period, a 6 tonne delivery of wine, consisting of three hundred jars of 10 *qa* (litres), each weighing 20 kilograms, was considered a normal load for a 20-*gur* vessel.²⁰ As for the size of the boats, texts mention the size of only two types: the first is a passenger boat, *rukubu*, with a length of about 12.5 metres, whereas the second, the *malallu* transport ship, was 6.0 metres in length, 4.0 metres wide and 3.0 metres deep. According to Salonen, the largest Babylonian vessel was 15.0 metres long.²¹ Very large ships made from timber in private shipyards were used for long sea journeys to countries such as Meluhha and Dilmun.²²

In addition, rental agreements for ships and several boat rental contracts are known from cuneiform texts. The charges for hiring watercrafts depended on the cargo being transported.²³ The daily cost of renting a sailing ship can be inferred from the ‘Laws of Hammurabi’: “If one hire a fast ship he shall pay two and one-half grains (ca. 20 g) per day” or “If a man hire a sixty-tonne boat, he shall give a sixth part of a shekel of silver (ca. 1.4 g) per diem for her hire”.

Accidents and infractions were a part of river traffic. There are several provisions in the ‘Laws of Hammurabi’ for compensation to owners for goods damaged or lost during transport. They often involve arresting the boat’s captain or its renter for damages to the boat or its cargo, as

well as arrests for damages due to accidents involving more than one vessel. When one boat going upstream collided with another coming downstream, “the captain of the upstream travelling ship rammed and sunk by a downstream travelling ship, the captain of the more manoeuvrable downstream travelling ship must replace the other ship as well as the lost goods.”²⁴ However, if the renting captain raised the sunken vessel, he owed only half of its price to the owner. In fact, the same attitude towards ‘negligence’ is already found in the earlier Laws of Eshnunna, where a negligent captain is responsible for restoring not only the lost goods but also the ship to its owner.

The investigated textual evidence implies the existence of large dockyards and boat-building facilities in southern Mesopotamia with numerous personnel, sometimes under state control. Several grades of personnel associated with shipyards were identified, including shipwrights, unskilled dockyard workers, specialist builders, carpenters, bitumen workers, and cloth/sail workers.

Chronological review

Archaeological evidence shows that water transport was the earliest mode of transportation in Mesopotamia. Before the invention of the wheel, waterways were best for circulating heavy loads and boats were one of the earliest forms of transport. In Mesopotamia, the earliest attestations of water transportation are dated to the Ubaid period (6th millennium BC). Land transportation probably developed in Mesopotamia early in the 4th millennium BC, although the use of cattle as pulling power may have begun earlier.²⁴

The oldest methods used by humans to transport cargo through rivers possibly made use of tree trunks since these are buoyant and glide over water, even with added weight. Cylindrical shapes flow through water more efficiently than other floating materials.²⁵ Having used tree trunks to transport goods along rivers for some time, people refined them according to their needs. The first of these improvements was to create an opening in the centre of a trunk in order to create a place to protect the navigator of the vessel and his property. The second involved the front part of the vessel which was carved into a narrowed point as a means of steering the vessel more easily than in the case of the previous construction.²⁶

In the Ubaid period, clear evidence for water transport comes from the appearance of ceramic boat models

¹⁸ Widell 2009, 159.

¹⁹ Potts 1997, 129.

²⁰ Potts 1997, 129.

²¹ Salonen 1939, 155–156.

²² Altun 2015, 60.

²³ Potts 1997, 129.

²⁴ Carter 2018, 71.

²⁵ Rashid 1981, 100.

²⁶ Curtis, Tallis 2008, 26–29; Rashid 1981, 100.

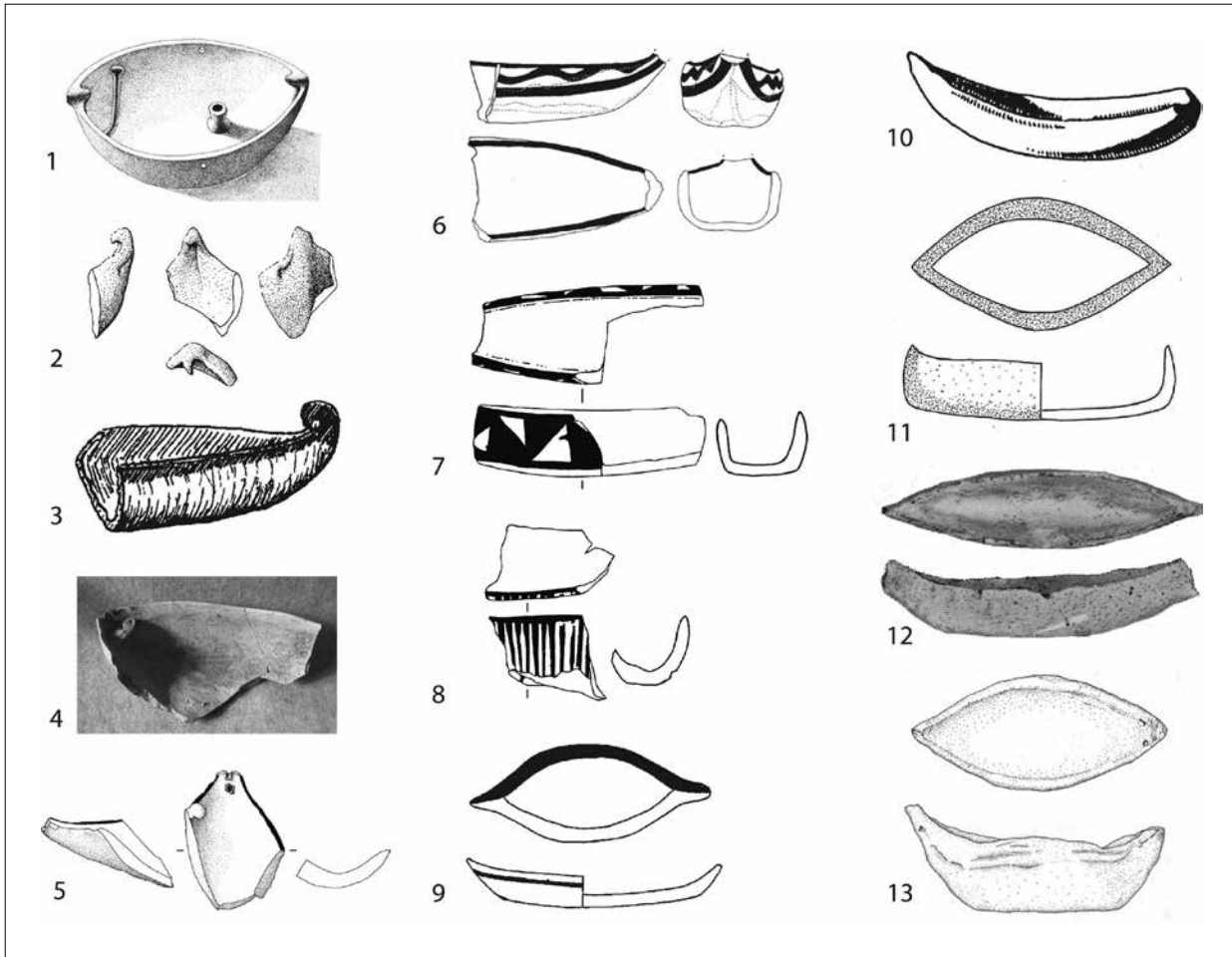


Fig. 2. Ubaid-period boat models (after Carter 2018, fig. 2.7).

(Fig. 2). The earliest of these indicate that several kinds of vessels were used for riverine transport. This variety implies an advanced watercraft tradition already in this early period. The majority of boat models in the Ubaid period have curved ends and slightly flattened bottoms, while others show more vertical or truncated ends. Some of the models have piercings along their edges which are usually interpreted as holes for rigging, suggesting the use of a mast and sail. A model from Eridu represents a sailing boat as evidenced by a central shaft for a mast (Fig. 2. 1).²⁷ Both ends of the model have holes, probably for rigging. The curled ends of several Ubaid models suggest a reed-bundle construction. The coating on one of the models from Eridu indicates that some were coated with bitumen, an early piece of evidence that boats were waterproofed. Most of the models from the Ubaid period may represent riverboats rather than sea-going ships.

Boat models in the Ubaid period are found at various sites covering the area from modern-day Kuwait to northern Mesopotamia. Southern Mesopotamia yielded the largest number of ceramic boat models, stressing the importance of riverine transport in this region. Finds of two boat models at Tell Mashnaqa (Fig. 2. 6), located in the Khabur triangle of north-eastern Syria, and Tell Zeidan (Fig. 2. 4), located on the Balikh River, clearly show that inhabitants of northern Mesopotamia and Syria also made use of boats for transport and fishing as early as in the Ubaid period.²⁸

In the 4th and 3rd millennium BC in southern Mesopotamia, flat-bottom boats with a characteristically upturned prow and stern raised high above the waterline were common, as can be seen on the cylinder seals from this period.²⁹ In some cases, boats of this type had leaf ornaments decorating the high horn-like stern and prow

²⁷ Safar *et al.* 1981, 231, fig. 111.

²⁸ Thuesen 2000, 73, fig. 5; Stein 2010, fig. 5.

²⁹ Potts 1997, 122–123.

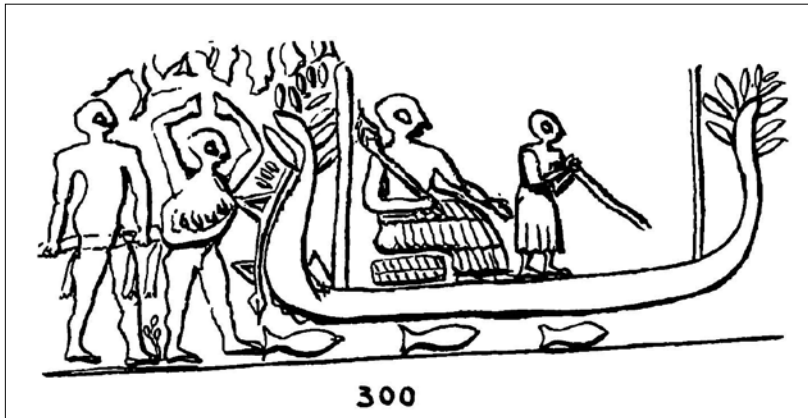


Fig. 3. Boat with high stern and prow decorated with leaf ornaments (after Legrain 1936, pl. 16, 300).



Fig. 4. The boat journey of the god Ea (cylinder seal impression, ca. 2300–2150 BC) (after Ward 1910, fig. 102).

(Fig. 3). The majority of boats were ceremonial in character, acting as journey vessels of the gods (Fig. 4). A mast or sail is never shown, possibly because these were river boats. Boat motion depended directly on the paddle. Nearly all depictions show a man punting at the front and another paddling or steering at the back which was high and curved (Fig. 5).³⁰ The early Dynastic and Akkadian glyptics shows some boats constructed of reed bundles, with reed and binding cords clearly depicted. A unique find is a silver model from the Royal Cemetery at Ur, with a flat floor and gently upward-curving ends and a possible canopy support in the middle. This silver model with seven thwarts and six pairs of paddles seems to correspond with the common fishing and hunting canoes of today's Marsh Arabs, especially the modern reed vessels.³¹

Cylinder seals often show cultic scenes where divinities are seated in boats with high up-curving ends. The *maqurru* is a barge used for ritual processions of the

gods by water. Kassite depictions show that boats with a curved hull and inward-curved ends were still in use in the late 2nd millennium BC.³² Assyrian reliefs also show a long, narrow reed boat of this type, employed usually in the marshes of southern Mesopotamia.

Ship types

A wide range of watercraft types and sizes was employed on the rivers and canals of Mesopotamia. The variety of boats probably reflects differences in construction, materials and functions. The native Mesopotamian typology of boats used geographical distinctions, such as 'Dilmun boat', 'Mari boat' or 'Assur boat', and the capacity of vessels rather than provenance or appearance.

The classification of southern Mesopotamian watercraft is usually based on distinguishing between the two most dominant materials used for boat construction

³⁰ Garrison 1989, 9–10.

³¹ Johnstone 1988, 10.

³² de Graeve 1981, 35–36, pls 30–31.



Fig. 5. Boat with Inanna symbol (cylinder seal impression, Uruk period) (after Foster 2009, fig. 1. 8).

– reed and wood.³³ As the evidence considering building materials is sometimes equivocal, in this paper boat types have been distinguished based on the general shape and construction as a major feature. Reed vessels may be identified on the basis of sets of parallel lines or striations, representing the bundles of reed which they were made of and seams, where the reed boats were sewn together.³⁴ However, not all reed boats have such unambiguous depictions. For example, boats on the early Dynastic glyptic generally lack the striations which enable reliable identification of reed constructions. Nevertheless, the curved nature of their ends and the general shape suggest that these were made of reeds as well.

Both sailing and non-sailing boats were used in Mesopotamia. With a sail, it was possible for a boat to move against the current of the river. Vessels with sails were available to southern Mesopotamian societies relatively early, as shown by a clay model boat dated to the late Ubaid, with a central shaft for a mast and sail from Eridu. The presence of a sail can also be suggested by the piercings at both ends of some models, which are usually interpreted as holes for rigging. Although riverine boats sometimes used sails, they were more usually propelled with oars or paddles or steered with steering poles, while the current provided the motive power. To return upstream, boats could be towed, sailed, or rowed against the current, although this was a laborious task.

A variety of watercrafts are attested on cylinder seals and wall reliefs – as models, and in written cuneiform sources: flat- and round-bottomed double-ended boats of reeds or wood, rafts on inflated skins, and basket-like water crafts covered with leather.

Flat- and round-bottomed double-ended boats made of reeds and wood

Iconography attests the existence of both flat- and round-bottomed ships. Flat-bottomed boats constitute the majority of riverine ships preserved from the Ubaid to Neo-Babylonian periods. There were differences in form or construction of boats which usually involve the shape of the prow and stern. Further variation is demonstrated by the difference in building material – vessels were made of reeds or wood. Based on the bottoms and the shape of their prows and sterns, ships can be divided into several types: crescent-shaped boats with rounded bottoms and simple outward ends, and flat-bottomed boats with straight vertical or out-turned ends, simple inward ends, inward-curved ends, and out-turned curved ends. The flat-bottomed boats with high, upturned prows and sterns are commonly shown in late Uruk and 3rd millennium glyptics. The shape and coiled ends of the vessels suggest a reed-bundle construction. Boats of this type were possibly coated with bitumen which increased their waterproof qualities. There are flat-bottomed boats with shorter ends, examples of which are depicted on Neo-Assyrian reliefs. They were commonly used in the marshes in the lower reaches of the Tigris and Euphrates. Assyrian reliefs show reed boats: some of the rafts are simple flat ones (marsh dwellers?), others have strongly up-turned ends (Fig. 6). It is clear that reed boats were well suited for local use on rivers and have had a long tradition – from the Ubaid period to the present day. In the Sumerian literary composition known as ‘Nanna-Suen’s Journey to Nippur’, the moon deity Nanna-Suen sends out men to collect materials necessary for the construction of his Magur-boat.³⁵ As a boat with a high, curving

³³ Potts 1997, 122.

³⁴ Casson 1971, 22–23.

³⁵ Ferrara 1973, 11, 37–58.



Fig. 6. Assyrian Relief from the Palace of Sennacherib in Niniveh (after Altun 2015, fig. 6).

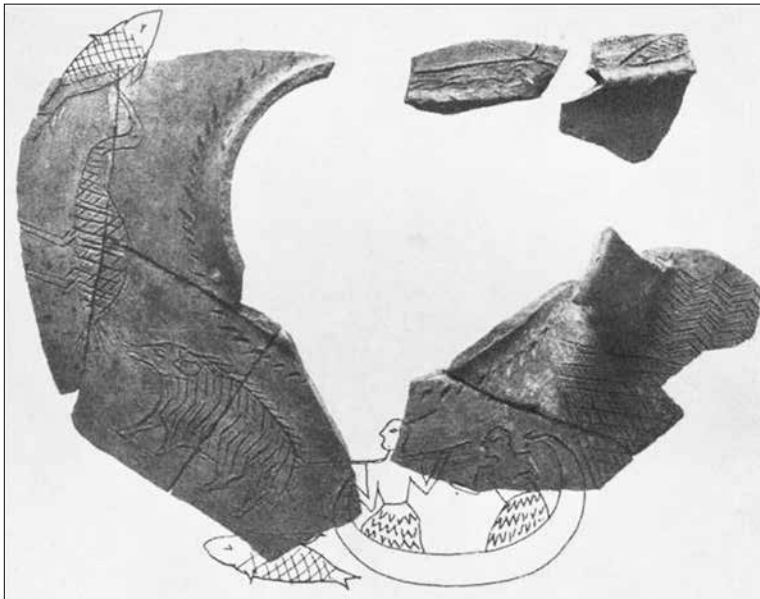


Fig. 7. Crescent-shaped boat on a vessel from Khafaja (after Frankfort 1934, 68, fig. 59).

prow and stern at either end, the Magur-boat was said to resemble the moon in its crescent phase when it lies on its convex side.

Archaeological evidence indicates that reed and/or wood plank crescent-shaped double-ended boats were widely used in the Tigris-Euphrates fluvial system very early, at least since the 6th millennium onward – first evidenced in Ubaid and still attested in the Neo-Assyrian period (Fig. 7). The use of such boats is amply attested in modern ethnographic records from southern Iraq. These vessels appear almost identical to *sasha* – an Arabian bundle boat still in use in the area. Ninety percent of the material necessary for building these boats is obtainable from the date palm tree.

***Kelek* rafts**

Kelek are skin-buoyed raft boats. The rafts were made of reeds or wood. Its buoyancy was increased by

attaching inflated goatskins below its surface. A number (sometimes hundreds) of inflated skins could be fitted to a wooden frame on which considerable loads could be carried. *Kelek* rafts were propelled by two oarsmen sitting at the forward end of the raft, each pulling an oar, with a third man on the float, swimming astern. Single separate inflated skins were also used on which a semi-immersed person could float or fish. Assyrian soldiers are commonly shown swimming with the help of an inflated goat skin when they are crossing a river (Fig. 8). It was the simplest form of river transport.

Today, rafts on inflated skins are known under the name *kelek* in Arabic. In Akkadian, it is known as *kalakku*, apparently from the Sumerian *ka-la*.³⁶ Texts from the 2nd and 1st millennia mention rafts of timber and several terms for rafts made of inflated animal skins appear,³⁷ for example leather *kelek* (ELEP duse) or *kelek* of tree trunks.³⁸

The earliest depictions of *kelek* are seen in the Assyrian reliefs in Niniveh, dating back to the 7th cen-

³⁶ de Graeve 1981, 82.

³⁷ Weszeli 2009, 161.

³⁸ Oppenheim 1956, 94.



Fig. 8. Shipping of building materials in coracles (*quffa*) (wall relief, Nineveh, South-West Palace, reign of Sennacherib, 704–681 BC) (after Layard 1853, pl. 12).

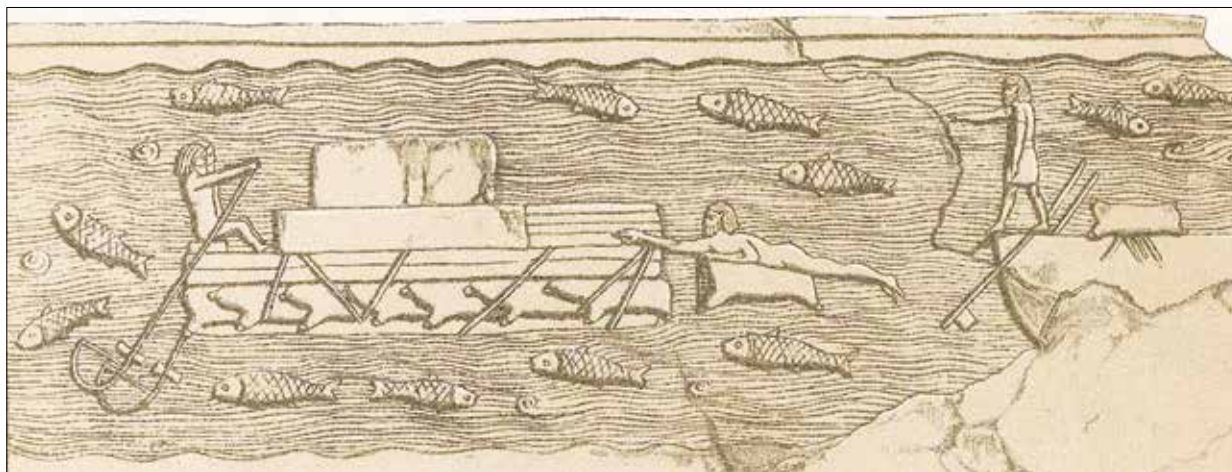


Fig. 9. Assyrian raft-boat (*kelek*) (wall relief, Nineveh, South-West Palace, reign of Sennacherib, 704–681 BC) (after Layard 1853, pl. 13).

tury BC. One of these examples, from the Sennacherib palace, shows Assyrians carrying stones on a raft made of inflated animal skins, while a third man, on a hide float, is guiding the raft from the stern (Fig. 9). *Kelek* were still in use in the 20th century in Iraq and Turkey for heavy loads. The loaded rafts floated down the river with the current. When the *kelek* reached its destination, the cargo was unloaded, the boat dismantled, the wood sold, and the goatskins deflated and loaded on donkeys to travel north and repeat the process.

***Quffa* coracles**

Quffa is a small vessel of a round form similar to a coracle, made of hides stretched over a circular wooden framework. This resembles the *quffa* of the recent centuries made by coiling a long bundle of reeds or straw into a hemisphere, and coating it with skins and/or bitumen. *Quffa* could measure up to 5.5 metres in diameter and carry 16 tonnes.³⁹ It was driven by one or two men with short shovels, and it was suitable for different cargos.

Quffa is an Arabic word which originated from the Akkadian word *quppu* meaning basket.⁴⁰ These boats are basically in the form of a big basket. *Quffa* was a type of round basket, resembling that for moving soil and bricks. The basket was similar to the one which King Ur-Nanshe carries on his head, and that which King Ur-Nammu uses for manufacturing bricks. Neo-Babylonian texts refer to a variety of ‘basket-boats’.⁴¹

There is no confirmed evidence for their use prior to the 1st millennium BC. Boats from that time are known from Assyrian reliefs. Reliefs depicting *quffa* have been found on Assyrian depictions dating to the reigns of kings Ashurnasirpal II (883–859 BC), Sennacherib (705–681 BC) and Ashurbanipal (668–627 BC). Assyrian reliefs show the shipping of building materials in a coracle to the city of Niniveh for the construction of Sennacherib’s palace (Fig. 8). In the North-Western Palace at Kalhu, *quffas* are shown carrying a chariot, a bed and a jar. Boats and people are shown in their entirety, not half-submerged as was typical of Assyrian art.

³⁹ de Graeve 1981, 86.

⁴⁰ Weszeli 2009, 168.

⁴¹ Weszeli 2009, 161.

Quffas were used in trade and transportation to the south, along with the current. Due to its circular shape means it does not sail well against the current as it tends to spin. When the destination was reached, i.e. in the lower section of the river, the boat would be disassembled into parts and the wood would be sold, while the leather would be collected and carried up the river for reuse in the construction of new boats.

Conclusion

The environment was an important factor in the development of river transport in ancient Mesopotamia. The emergence of this type of communication was an answer to the vital needs of the inhabitants of Mesopotamia – one of these basic needs was to communicate and circulate goods and natural resources. The inhabitants of ancient Mesopotamia developed this type of transport from the early times of their history, as evidenced by boat models in the Ubaid period (5900–4200 BC).

Besides rivers and their tributaries, a number of artificial canals were employed for water transport in Mesopotamia. The Euphrates was better suited for transport compared to the fast-flowing Tigris. Moreover Euphrates-based canals were developed better.⁴² Besides their important role in irrigation, artificial canals, many of which were navigable, were crucial for communication and trade. In Mesopotamia, the prevailing winds and rivers moved more or less southwards.⁴³ Boats were, therefore, generally sailed downstream and towed upstream. Only when the wind occasionally shifted it was possible to sail upstream.⁴⁴ In this context, the canals were an attractive alternative in transport and communication. The investigated texts make it clear that boats would travel up

and down the canals. The size of vessels was probably one of the factors influencing the choice of the watercrafts used on the canals. During the Ur III period, ships of the 60-, 50-, 40-, 30-, 20- and 10-*gur* size categories were in use at Umma, and it is clear that some of the canals around this town were navigable only by small vessels.⁴⁵

Considering the vessels' major construction attributes, several types of boats or rafts have been distinguished based on cuneiform texts, boat models and representations in art: crescent-shaped boats with rounded bottoms and simple outward ends, flat-bottomed boats with straight vertical or out-turned ends, simple inward ends, inward-curved ends and out-turned curved ends, as well as rafts on inflated skins (*kelek*) and the *quffa* coracles. Although sailing ships were used, riverine transport was mainly based on non-sailing vessels whose motion depended directly on the paddle.

Until the Neo-Assyrian period, not many changes were applied to the basic design of riverine boats. This can be partly explained by the available building materials and by the fact that as soon as a basic form of vessel was obtained, there was no need for substantial improvements. It is not until the Neo-Assyrian period that any kind of Mesopotamian vessels appear other than the crescent-shaped double-ended boats made of wood or reed. With the Assyrian reliefs came the rafts on inflated skins and basket-like watercrafts covered with leather. Even the first rafts on inflated skins (*kelek*) and basket-like coracles (*quffa*) attested in the art of that period were derived from a much older tradition. The name *kelek* has Sumerian etymology which implies the considerable antiquity of this raft concept. Many types of riverine boats attested in Antiquity are still used by the people of Iraq, as shown by ethnographic evidence.

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⁴² de Graeve 1981, 18.

⁴³ Hausen 1979, 97; Johnstone 1988, 77.

⁴⁴ Johnstone 1988, 77.

⁴⁵ Sauren 1966, 37–39.

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UNPUBLISHED PORTRAIT HEAD OF A YOUNG MAN FROM ALEXANDRIA

ABSTRACT

This article presents an unknown portrait head from the Flavian period, preserved in a storeroom in Alexandria (Egypt).

Keywords: Graeco-Roman Egypt, Alexandria, portrait head, Flavian period

The paper discusses a portrait head depicting a young man, currently housed in the Maria Storeroom, west of Alexandria (inv. no. 218). Unfortunately, nothing is known about its provenance.

The head is made of white marble; its height amounts to 0.2 metre. Apparently, it once belonged to a small or commemorative statue. The head depicts a beardless young man. The face is slender, highly polished and softly treated. The forehead is small, lightly protruded in the middle, but does not show any wrinkles. The eyebrows are protruding and sharply carved in a straight line, without any indication of hair. The eyes are wide, open, almond-shaped and lidded slightly, with deeply inserted inner corners. The upper and lower eyelids are similar but lack any indication of the iris or pupil (Fig. 1).

The nose is well-carved, thin and straight, with a small bridge. The nostrils are realistically engraved with a drill. The mouth is small, closed and carved in two separated rows, with two fleshy lips. The mouth is marked by small holes ending the lips and two light lines emerging towards the chin.

The chin is small, well carved, protruding and bounded by the two lines mentioned above. The cheekbones are clearly executed and carved with light lines which depict the skinny face.

The ears are big, carefully sculpted, symmetrically rendered with their inner details realistically patterned (Fig. 2). The neck is softly carved and shows veins, with

a small hole engraved at its bottom for fastening a metal prop. In other words, the head appears to have been broken off from a statue (Fig. 3).

The hairstyle is a characteristic feature of this head, as it is arranged in twelve rows of individual, spiralling corkscrew curls with drilled holes. The curls frame the forehead and both sides around the ears (Fig. 4).

Since the provenance of this beautiful head is unknown, a stylistic study had to be used for dating it. Furthermore, we can depend on the face treatment in this regard. The face shows portrait features and its treatment is comparable to that of many of the portrait heads kept in museums around the world. For example, the portrait of Domitia, from the Capitoline Museum in Rome (Fig. 5), shows similar features: a well-carved face, slightly protruding forehead with lightly protruding eyebrows, eyes with deeply inserted inner corners, without any indication of the iris or pupil, a small mouth with fleshy lips and small holes ending it, a straight nose and the most characteristic feature – the hairstyle arranged in many rows of drilled curls. This portrait head dates to the Flavian period.¹

Another portrait of a young woman, probably depicting Domitia, with a similar hairstyle and facial features, is in the Graeco-Roman Museum of Alexandria (Fig. 6).² The portrait head of Domitia from the National Roman Museum in Rome (Fig. 7) with drilled curls³ and the two portraits mentioned above are dated to the Flavian

¹ Hekler 1912, 323, pl. 239 b.

² Savvopoulos, Bianchi 2012, 62, fig. 14 (inv. no. 3516); Breccia 1922, 191–192, no. 3.

³ Kleiner 1992, 179, fig. 148.



Fig. 1. Portrait head of a young man, the Maria Storeroom, inv. no. 218, front view.

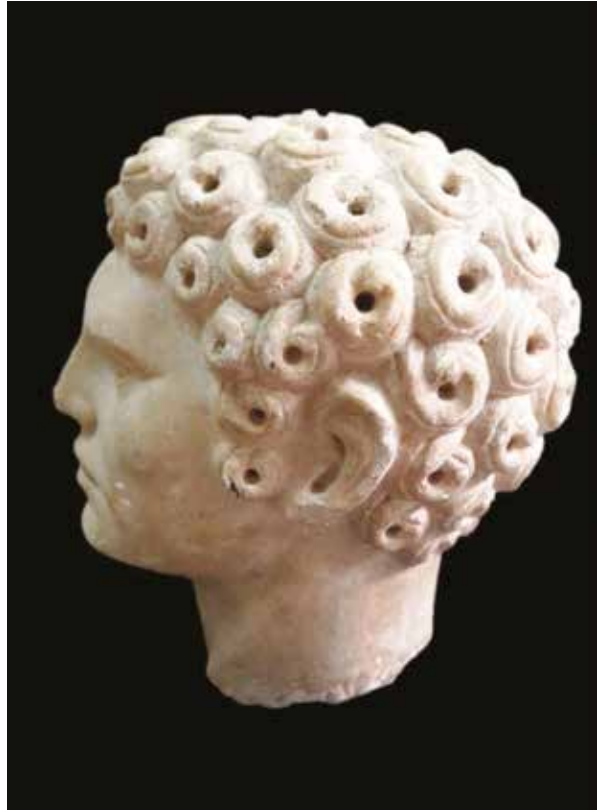


Fig. 2. Portrait head of a young man, the Maria Storeroom, inv. no. 218, side view.



Fig. 3. Portrait head of a young man with a small hole at the bottom, the Maria Storeroom, inv. no. 218.

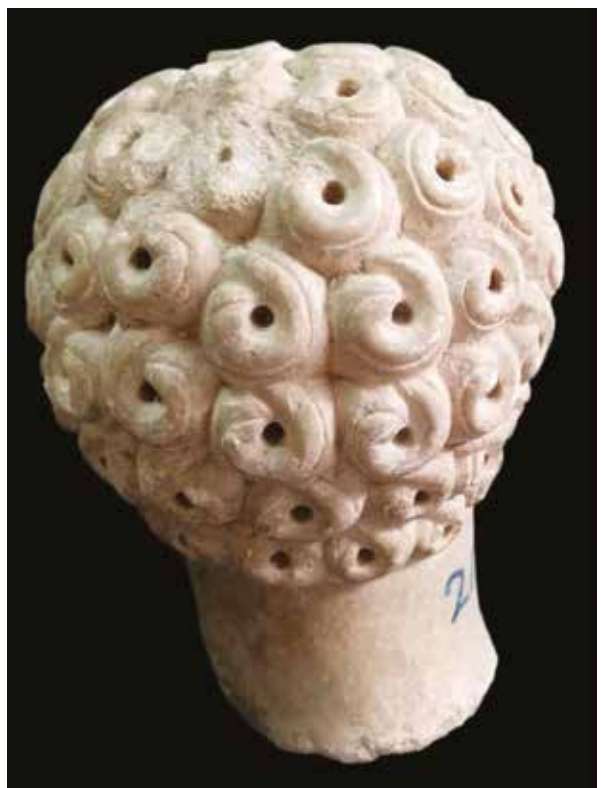


Fig. 4. Portrait head of a young man, the Maria Storeroom, inv. no. 218, back view.



Fig. 5. Portrait head of Domitia, the Capitoline Museum, inv. no. 25 (after Hekler 1912, 323, pl. 239 b).



Fig. 6. Head of a young woman, probably Domitia, the Graeco-Roman Museum of Alexandria, inv. no. 3516 (after Savvopoulos, Bianchi 2012, 62, fig. 14).



Fig. 7. Portrait head of Domitia, the National Roman Museum in Rome, inv. no. 57.261 (after Kleiner 1992, 179, fig. 148).



Fig. 8. Portrait head of a Roman lady, Copenhagen, inv. no. 747 (after Borg 2019, 139, fig. 3.7).



Fig. 9. Portrait of Marcia Furnilla, Copenhagen, inv. no. 711 (after Kleiner 1992, 178, fig. 146).

period. Another head of a Roman lady from Copenhagen (Fig. 8) with analogous drilled curls is dated to the early Flavian period.⁴ The portrait of Marcia Furnilla from Copenhagen with a similar hairstyle (Fig. 9) is dated to the Flavian period.⁵

The statue of a young man from the Vatican Museums in Rome (Fig. 10) with a similar hairstyle and facial features is dated to between the late 1st and the early 2nd cen-



Fig. 10. Statue of a young man, the Vatican Museums, cat. no. 65 (after Hallett 1993, 195, fig. 5.46).

ture AD.⁶ The bust of a Flavian woman from the Getty Museum with drilled curls (Fig. 11) is dated to 90 AD.⁷

Another portrait head of a Roman lady from the Cleveland Museum of Art (Fig. 12) is dated to the early 2nd century AD.⁸ In the case of the head of a Roman lady from the Museum of Apollonia (Fig. 13), the hairstyle and face treatment of this beautiful head also reflect the fashion of Flavian women.⁹ The grave relief depicting a Roman woman in the Louvre (Fig. 14) is dated to the Flavian period.¹⁰ In the case of a group of a mother and daughter in the collection at Chatsworth (Fig. 15), the woman was represented with a coiffure popular among women in the Flavian period.¹¹ The funerary altar of Cominia Tyche at the Metropolitan Museum (Fig. 16),

⁴ Borg 2019, 139, fig. 3.7, no. i; Bentz 1997/1998, 67, fig. 16.

⁵ Kleiner 1992, 178, fig. 146.

⁶ Hallett 1993, 195, fig. 5.46.

⁷ Frel 1981, 56, fig. 39.

⁸ Howard 1926, 9, fig. 2.

⁹ Ceka 2017, 424–425, fig. 2.

¹⁰ Poyiadji-Richter 2009, 185, fig. 4.

¹¹ Strong 1907, 366, pl. CXXV; Furtwängler 1901, 221.



Fig. 11. Bust of a Flavian woman, the Getty Museum, inv. no. 73.AA.13 (after Frel 1981, 56, fig. 39).



Fig. 12. Portrait head of a Roman lady (Octavia, wife of Nero), the Cleveland Museum of Art, inv. no. 103 (after Howard 1926, 9, fig. 2).



Fig. 13. Head of a Roman lady, the Museum of Apollonia (after Ceka 2017, 424–425, fig. 2).



Fig. 14. Grave relief depicting a Roman woman, the Louvre, inv. no. MNB 2029 (after Poyiadji-Richter 2009, 185, fig. 4).



Fig. 15. Group of a mother with her daughter, the Chatsworth collection (after Strong 1907, 366, pl. CXV).

depicting a Roman lady with a hairstyle, is also dated to the Flavian period.¹²

The herm depicting Staia Quinta from Copenhagen (Fig. 17), with a beautiful hairstyle distinguished by drilled curls surrounding both sides of the head is dated to the second half of the 1st century AD.¹³ Another head of a Roman lady (Fig. 18) with a similar face treatment and drilled curls on both sides of the head beneath the hairdo is dated to the 1st century AD.

As for the distinguished individual with drilled curls, the present study conducted on many examples of Roman portraits indicates, with no doubt, that a reasonable date for the discussed head is the Flavian period.¹⁴ As we mentioned above, and due to the lack of information

about the provenance of this beautiful head, we depended on the stylistic analysis and face treatment to date it.

It is worth noting that Imperial portraits, as well as those of individuals, adopted the same fashion, not only for the hairstyle, but also for the face treatment.¹⁵ Furthermore, the Flavian period was a new and distinct artistic age. It differs from the Julio-Claudian period especially by the use of realism instead of idealism which prevailed in the earlier period.¹⁶ In the Flavian period, a sculptor would use the drill more often than before and show great attention for highly polished and softly treated faces.¹⁷

¹² Thompson 2007, 119, fig. 24; McCann 1978, 19, fig. 8.

¹³ Feijfer 2008, 287, pl. 25.

¹⁴ Romano 2006, 235–236, cat. no. 115.

¹⁵ Evans 2005, 441.

¹⁶ Henig 1983, 86; Tuck 2015, 181.

¹⁷ Strong 1976, 37.



Fig. 16. Funerary altar of Cominia Tyche, the Metropolitan Museum (after Thompson 2007, 119, fig. 24).



Fig. 17. Herm depicting Statia Quinta, Copenhagen (after Feijfer 2008, 287, pl. 25).



Fig. 18. Head of a Roman lady (after Romano 2006, 235–236, cat. no. 115).

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HERMES-THOTH ON MAGICAL GEMS AND AMULETS

ABSTRACT

This paper examines ancient glyptics that provide evidence for the merging of the cults of Thoth, the Egyptian god of wisdom and writing, and Graeco-Roman Hermes/Mercury. With the use of semantics and iconological methodologies, the paper demonstrates that the popularity of the syncretic deity Hermes-Thoth was far greater than previously thought and, in fact, comparable to that of other syncretic figures, such as Hermanubis. This is possible because the analysis is not

limited to the iconography of magical gems that clearly refer to this deity represented in figural form, but also encompasses symbolic amulets featuring rebuses which, if properly read, refer to Hermes-Thoth as well. It is argued that *kerykeion* was not the only Hellenising element used to mark Hermes's nature in the cult of Hermes-Thoth. The article also contributes to the wider discussion on the identification and function of magical gems and amulets in general.

Keywords: amulets, glyptics, Hermes-Thoth, magical gems, syncretic deities

Introduction

In the Ptolemaic period, the Egyptian religion was significantly transformed under Greek influences and a number of local deities were identified with their Greek counterparts. This process continued in the first centuries of the Christian era, once the Romans conquered the Mediterranean world. As Pliny the Elder reports, already by the 1st century AD both the oddity and mystery of the Egyptian cults, which often referred to the afterlife, became appealing to the Romans who willingly carried images of Egyptian deities and related subjects on their personal finger rings inlaid with engraved precious and semi-precious gemstones.¹ Tiny gems constitute a group of archaeological artefacts that provide us with a huge amount of information regarding the intimate and deliberate choices made by people in Antiquity, especially when they reflect religious beliefs. Their character was intrinsically private; therefore, they are good indicators of contemporary trends in religion and magic. They are also a plausible means of conveying the mechanisms of religious evolution, as well as more abrupt revolutions and the emergence of new faiths. One such case was the

assimilation of the Egyptian god of wisdom and writing, Thoth, with Graeco-Roman Hermes/Mercury. Hence, the present paper sets out to prove the occurrence of this phenomenon through an analysis of some intaglios which are called magical gems due to the frequently accompanying inscriptions and incantations.

Merging of Thoth and Hermes

In the Egyptian pantheon, Thoth was essentially the god responsible for the maintenance of the universe. He was one of the two deities (the other being Ma'at) who stood on either side of Ra's solar barge.² The god of the Moon played many vital and prominent roles in Egyptian mythology, and in the Hellenistic and Roman periods Thoth became strongly associated with the arbitration of godly disputes, arts of magic, the system of writing, the development of science, the judgment of the dead, and the control of destiny.³ Because of these multiple functions that were associated with him, Thoth frequently appears on magical gems dated to between the 1st and 3rd centuries AD.⁴ These small carved gemstones

¹ Pliny the Elder, *NH*, XXXIII, 41.

² Delatte, Derchain 1964, 141; Budge 1969, 400.

³ Budge 1969, 403; Michel 2004, 50–51; Bąkowska-Czerner, Świerżowska 2015, 3.

⁴ Michel 2004, 198–202.

were primarily used as protective and curative amulets, but there is also evidence for their usage in magical rituals and offerings.⁵ Thoth is usually depicted as a human figure with the head of an ibis or baboon.⁶ The magical inscriptions that appear on gems representing Thoth, which often repeat texts and incantations from magical papyri, can be divided into two types: those that refer to grand ideas, the creation of the world and its rebirth as well as the Moon and astrology; and those that performed apotropaic and medicinal functions.⁷

Hermes/Mercury was a major god in the Graeco-Roman pantheon. He was the god of financial gain, commerce, eloquence, messages, communication (including divination), travellers, boundaries, luck, trickery and thieves.⁸ Due to his many talents and auspices, he was one of the primary divine characters represented on intaglios and cameos, especially in the Roman period. As the messenger of the gods, Hermes was obliged to keep their secrets safe, and therefore was the perfect choice for a seal.⁹ He also served as a guide of souls to the underworld and it appears that this was the main reason why he was associated with Thoth.

Glyptic art, alongside other media, provides evidence for Hermes's syncretisation with Egyptian deities such as Anubis, but also Thoth.¹⁰ In Munich, there is a haematite intaglio featuring Hermes and Anubis standing next to each other.¹¹ The combination of Hermes and Anubis, also known as Hermanubis, frequently appears on gems and is illustrated in a standardised form, e.g. as a jackal-headed anthropomorphic figure dressed as a Greek and holding a *kerykeion* (Fig. 1).¹² However, in Kassel there is an unparalleled magical gem cut in haematite that shows Mercury, Anubis and an ibis together.¹³ Since the ibis was a sacred bird of Thoth, the gem should be interpreted as



Fig. 1. Intaglio, Hermanubis with the *kerykeion* and a palm branch (carnelian), 16 x 12 x 4 mm. The British Museum, London, inv. no. G 420 (EA 56420). Photo by Christopher A. Pharaone, courtesy of the ©Trustees of the British Museum.

standing in for the Egyptian god, so in effect the object depicts a triad of somehow parallel deities.

The deity that came into being as a combination of Hermes and Thoth was Hermes-Thoth, sometimes also called Hermes Trismegistus. The main location where he was worshipped was the Temple of Thoth in Khemenu, which was known in the Hellenistic period as Hermopolis.¹⁴ That location was not accidental, as the syncretic deity was also combined with the local ones – Khnum and Hapy.¹⁵ It seems that the syncretisation of Hermes and Thoth was not illustrated on engraved gems as often as Hermanubis, especially in the anthropomorphic form,¹⁶ but it was often expressed using different (symbolic) means in the late 1st century BC and throughout the Roman period.¹⁷

⁵ For a general introduction to the subject, see Michel 2004; Zwierlein-Diehl 2007, 210–231; Mastrocinque 2003; 2007; 2014.

⁶ Delatte, Derchain 1964, 141–51.

⁷ Michel 2004, 198–202; Bąkowska-Czerner, Świerżowska 2015.

⁸ Sena Chiesa 1966, 137–38.

⁹ Gołyźniak 2017, no. 390. For more reasons behind the popularity of Hermes/Mercury on gems, see LIMC VI 1992, 550–554, s.v. Mercurius (E. Simon, G. Bauchhens); Henig 2007, 28–29; Sena Chiesa *et al.* 2009, 44–46.

¹⁰ Quaegebeur 1986, 525–44; Henig, MacGregor 2004, 121; Michel 2004, 52–53.

¹¹ Unpublished object, available at: http://antik.szepmuveszeti.hu/talismans/cbd/323?lang1=default&description1=hermes&mdesc=false&lang2=default&multiple_cond=and. Accessed 10 July 2019.

¹² Philipp 1986, n. 142; Zwierlein-Diehl 1991, n. 2201; Michel 2001a, nn. 59–60. For more general information about the association of Hermes with Anubis, see Benaissa 2010, 67–68.

¹³ AGDS III Kassel 1970, n. 172; Michel 2004, 52–53.

¹⁴ Delatte, Derchain 1964, 141–42; Bailey 2012, 192.

¹⁵ Bąkowska-Czerner, Świerżowska 2015, 3.

¹⁶ Mastrocinque 2003, 197. Even a quick look at the Campbell Bonner Magical Gems Database (http://classics.mfab.hu/talismans/visitors_salutem), which includes more than 2800 specimens, shows that Hermanubis is represented on 19 gems, whereas there are only six objects which may be securely identified as featuring Hermes-Thoth.

¹⁷ Zwierlein-Diehl 1991, n. 2209; Michel 2001b, n. 38; Mastrocinque 2014, no. 49.

Hermes-Thoth: anthropomorphic form

The figure of Hermes-Thoth finds its clearest expression in the anthropomorphic form on a magical gem (green and red jasper or bloodstone) from Hamburg. The object depicts an ibis-headed god striding towards the left, wearing a mantle, a crown and winged sandals. He is holding a *kerykeion* in his left hand, while the right hand is grasping a rod driving forward a wheel (Fig. 2).¹⁸ As a sacred bird to Thoth, the ibis serves to represent this god, while the *kerykeion* stands for Hermes. The wheel of fortune is normally an attribute of Nemesis;¹⁹ however, in this case it refers to destiny and thus to Thoth's and Hermes's role as *psychopompos*. The other side of the gem is inscribed with the name of Thoth and a salutation to him. The gem was used as an amulet purposed either to bring its owner good luck and prosperity under the auspices of Hermes-Thoth or to ensure a successful journey of the soul to the underworld.²⁰ On the gem in London, cut in brown-green jasper, the figure of Hermes-Thoth may be inferred not from iconographical elements alone – since the nude male with a chlamys, *kerykeion* and the wheel of destiny could be interpreted simply as Hermes – but because the inscription on the other side of the stone adds the name of Thoth to the rebus, transforming the figure into the syncretic god, Hermes-Thoth.²¹ Another vague instance of this deity is represented on a red jasper in Paris. On one side, it is engraved with an image of an ibis standing on the primeval mound facing left, wearing the atef crown, carrying the *kerykeion* and surrounded by a few illegible characters. The other side of the stone shows Hermes represented as a naked figure, wearing a crown and boots, holding an object (or a turtle?) in his raised right hand, with animal skin or a mantle hanging down from his left hand. There are characters and Greek letters all around it.²² Since the ibis was the sacred bird of Thoth, it represents this deity here; in combination with the fact that it is carrying the *kerykeion* while the figure of Hermes himself is on the other side of the gem may suggest that the image shows a syncretic variant of the two gods in one: Hermes-Thoth. It is noteworthy that Hermes-Thoth represented as the ibis with the *kerykeion* or the wheel of fortune may be accompanied by other, usually solar, deities, as in the



Fig. 2. Intaglio, Hermes-Thoth with a wheel and the caduceus, inscribed (green jasper-bloodstone), 15 x 12 x 2 mm. The Skoluda collection, Hamburg. Photo: courtesy of ©Simone Michel, reproduced with the kind permission of Wolfgang Skoluda.

case of the touchstone intaglio which also features the figure of Apollo-Mithra and a red jasper engraved with Apollo on the other side, both in Paris.²³ Another important example is a haematite intaglio in London, where ibis-headed Hermes is sitting on a throne, holding the *kerykeion* while a solar deity is standing in front of him.²⁴ This setting may be explained by Thoth's original connections with primordial myths of creation and renewal of life to which solar deities were also attached.²⁵

Hermes-Thoth: symbolic forms

As mentioned above, the concept of Hermes-Thoth seems to have been much less frequently represented on magical gems compared to Hermanubis; however, this first impression changes considerably when more attention is paid to symbolic gems. This may be best illustrated by the haematite intaglio in London, where the figure of Hermes stands next to Thoth represented as the ibis (Fig. 3).²⁶ It should be taken for granted that whereas the ibis represents Thoth on magical gems when it is depicted alone, the same bird combined with the figure, or at least symbols, of Hermes stands for Hermes-Thoth. This notion is confirmed by a green jasper intaglio set in an iron ring from Rome, engraved with the *kerykeion* surrounded by Greek letters forming the name Thoth.²⁷

¹⁸ Michel 2001b, no. 24.2.1.

¹⁹ Gołyźniak 2017, nos. 62 and 408 (with further literature on the subject).

²⁰ Henig (Henig *et al.* 1994, no. 503) points out that some magical gems have been found in burials which indicates that people believed in their essential help in the afterlife.

²¹ Michel 2004, no. 61. A slightly different variant is depicted on another stone from London; see Michel 2004, no. 62.

²² Mastrocinque 2014, no. 106.

²³ Mastrocinque 2014, nos. 105 and 107.

²⁴ Michel 2001a, no. 52.

²⁵ Mastrocinque 2003, 197–98.

²⁶ Michel 2001a, no. 58.

²⁷ Mastrocinque 2007, no. RoC.3.



Fig. 3. Intaglio, Hermes and ibis (Thoth), inscribed (haematite), 22 x 9 x 2 mm. The British Museum, London, inv. no. OA.9620. Photo by CC BY-NC-SA 4.0: ©The British Museum.



Fig. 4. Intaglio, ibis-headed Thoth (amethyst), 14 x 10 x 5 mm. The Jean Paul Getty Museum, Malibu, inv. no. 83.AN.437.55. Photo by ©Digital images courtesy of the Getty's Open Content Program.

The ibis was sacred to and associated with Thoth because it represented the Nilotic revival and the cycle of life, as well as destiny.²⁸ Thoth was often represented on magical gems in the form of an ibis-headed human body, e.g. on the amethyst from Malibu, California (Fig. 4).²⁹ As a sacred animal, a dead ibis would be embalmed and put inside the hollow body of its wooden representation. Alternatively, the mummified remains were placed in pottery jars and deposited in vast underground galleries. Hundreds of thousands of such burials have been discovered at Sakkara, near Memphis, the ancient capital of Egypt.³⁰

The importance of the ibis in the cult of Thoth becomes obvious when magical gems featuring this creature are analysed. The ibis enjoyed extreme popularity and was presented in various forms reflecting individual aspects of Thoth's numerous skills.³¹ On a blue chalcedony intaglio in Kraków, the bird is represented with the *ankh* sign (cross of life) – this combination may reflect a desire for eternal life (Fig. 5).³² There is no reference to Hermes on this gem, but it possibly illustrates this god's

role of *psychopompos* which included the responsibility for escorting newly-deceased souls towards the afterlife. This function was shared by both Thoth and his Greek counterpart. Another popular motive featuring the ibis is a bird blowing a trumpet (*lituus*) (Fig. 6). Śliwa misunderstood the iconography, interpreting the bar of the instrument as a lance and thus suggesting that the motive was linked with the Roman army, perhaps a Roman legion stationed in Egypt which adopted the ibis as its symbol, speculating that legionaries may have used gems bearing this motive as amulets.³³ The trumpet which the bird is blowing is of a military type, but *lituus* was frequently used in funeral processions as well, so the motive from the gems in question rather refers to Thoth's role as *psychopompos*. Interestingly, a red jasper intaglio in Nuremberg and another one (carnelian) in Berlin present a cockerel, a sacred bird to Hermes, during the very same activity. This arguably strengthens the idea that both Thoth and Hermes, or rather their syncretic combination as Hermes-Thoth, was meant to be recalled by such imagery.³⁴

²⁸ Henig *et al.* 1994, no. 503.

²⁹ Bonner 1950, nos. D.45–46; Michel 2001a, nos. 52–55 and 122, 2001b, no. 38, 2004, no. 27.4.a.3; Mastrocinque 2014, nos. 95–100.

³⁰ Wasef 2016.

³¹ Michel 2004, 52.

³² Śliwa 2014, no. 27.

³³ Śliwa 2014, no. 91. This type is not as extraordinarily rare as Śliwa claims; for some analogies, see Furtwängler 1896, nos. 3296, 7909, 8328 and 8539; Walters 1926, no. 2457; Sena Chiesa 1966, no. 1321; AGDS I.2 1970, no. 907; AGDS IV Hannover 1975, no. 1126; Henig 1975, no. 228; Maaskant-Kleibrink 1978, no. 762; Zwierlein-Diehl 1991, no. 1946; Weiß 2007, no. 498.

³⁴ Furtwängler 1896, no. 7904; Weiß 1996, no. 344.



Fig. 5. Intaglio, an ibis with the *ankh* sign (chalcedony), 21 x 20 x 6 mm. The National Museum, Kraków, inv. no. MNK-Ew-IV-zł-119. Photo by © Photographic Studio of the National Museum, Kraków (public domain).

As reported by both Bonner and Michel, a very popular type of magical amulets would depict an ibis tied to an altar with three flowers or other plants. On Palestinian, and possibly Christian, amulets it is tied to a structure that lacks the plants at the top and instead it is usually attacking a serpent which symbolises Thoth's combat against evil.³⁵ An analysis of the inscriptions that accompany many of such pieces allows to conclude that those gems were particularly effective against indigestion and were also helpful in healing fevers (Fig. 7).³⁶ The ibis was believed to be free of all diseases and was thought to be an antidote to poison or polluted water.³⁷ Thus, its healing powers combined with the properties of the stones which it was engraved upon (mainly green and black jasper, dark grey-green steatite, and dark brown limonite) significantly increased the effectiveness of this sort of amulets.³⁸ Yet, as Henig observes, there was a connection between Thoth, represented as the ibis, and Isis – and this connection referred to the cult of regeneration.³⁹

All of the types of amulets discussed above lack direct references to Hermes; however, it is worth pointing out that according to some magical papyri, Aesclepius was regarded as a disciple of Hermes-Thoth.⁴⁰ In light of the above, could these amulets, which clearly address



Fig. 6. Intaglio, an ibis blowing a trumpet (*lituus*), a star in the field, inscribed (red jasper), 12 x 9 x 3 mm. The National Museum, Kraków, inv. no. MNK-Ew-IV-zł-1827. Photo by © Photographic Studio of the National Museum, Kraków (public domain).

medicinal issues, indirectly refer to that syncretic deity rather than exclusively to Thoth? There are combinations where the bird is depicted together with emblems of Hermes, which clearly suggests an association of the whole rebus with Hermes-Thoth. The most popular iconographical scheme is the ibis standing (often on the primeval mound) with the *kerykeion* (Fig. 8).⁴¹ This configuration should be read as a combination of two deities in one, since the ibis stands for Thoth and the wand stands for Hermes.⁴² This is another way of referring to the common function of the two gods, i.e. acting as *psychopompos*. It was a symbol of rebirth, with an additional apotropaic function.⁴³ Gems of this type were also used as amulets intended to bring good fortune and prosperity ensured by Hermes as an overseer of commerce. A slightly different version of the same concept is illustrated by a flying ibis holding a staff (the *was*-sceptre?) in its beak and the *kerykeion* of Hermes in its talons on a carnelian in Berlin.⁴⁴

³⁵ Bonner 1950, nos. 304–6.

³⁶ Bonner 1950, 51–53; Delatte, Derchain 1964, 145–148; Philipp 1986, no. 119; Zwierlein-Diehl 1991, no. 2209; Michel 2004, 199–200.

³⁷ Henig, MacGregor 2004, 122.

³⁸ Bąkowska-Czerner, Świerżowska 2015, 4–5.

³⁹ Henig *et al.* 1994, no. 503.

⁴⁰ Bąkowska-Czerner, Świerżowska 2015, 11.

⁴¹ The Campbell Bonner Magical Gems Database (http://classics.mfab.hu/talismans/visitori_salutem) includes nine gems bearing this sort of iconography, whereas Michel (2004, no. 27.1.b) collected eleven examples.

⁴² Philipp 1986, no. 120; Michel 2004, 54.

⁴³ Bąkowska-Czerner, Świerżowska 2015, 9.

⁴⁴ Weiß 2007, no. 497.



Fig. 7. Intaglio, an ibis tied to an altar, inscribed (limonite), 24 x 20 x 4 mm. The Kelsey Museum of Archaeology, Ann Arbor, University of Michigan, inv. no. 26038. Photo courtesy of Christopher A. Pharaone with the kind permission of the ©Kelsey Museum of Archaeology.

Another field in which the syncretic deity of Hermes-Thoth was useful was the engagement in the combat between order and chaos, good and evil.⁴⁵ This is well illustrated on an unparalleled red jasper intaglio featuring an ibis standing on a tortoise (Fig. 9). The gem was found in Greece by Athanasius G. Trypanis in 1905 and for many years was part of the Professor Constantine Athanasius Trypanis (1909–1993) collection. Theodora Hadzisteliou Price published it for the first time in 1972, asserting that the ring in which it is set is ancient, which is untrue, because its form and decoration are alien to any type of ring known from the Roman period.⁴⁶ It is a modern product that must have replaced the original from which the gem was extracted, becoming cracked in the process and repaired later. The stone itself is red jasper (not sard as Hadzisteliou Price believes) and according to the stylistic criteria ('Imperial Small Grooves Style'),⁴⁷ the intaglio should be dated to the 2nd century AD. Red jasper was one of the most popular gemstones used either as magical and the so-called *grylloil/baskania* gems,

⁴⁵ This role seems to have originally belonged more to Thoth than Hermes, as the former's anthropomorphic or ibis form is often presented in the act of trampling a lizard, snake or crocodile; see Mastrocinque 2003, 197; Bąkowska-Czerner, Świerzowska 2015, 9–10.

⁴⁶ Hadzisteliou Price 1972, 60 and 62–63. Neither Henkel's typology (1913) nor that compiled by Guiraud (1988–2008) include a similar type of ring.



Fig. 8. Intaglio, an ibis with the *kerykeion*, inscribed (magnetite), 17 x 14 x 4 mm. The British Museum, London, inv. no. G 1986,1-5,115. Photo by Christopher A. Pharaone, courtesy of the ©Trustees of the British Museum.



Fig. 9. Intaglio, an ibis (Thoth) with a snake stands on a tortoise (Hermes) (red jasper), 13 x 6 mm, set in a modern silver ring. Private collection. Photo courtesy of Hadrien J. Rambach.

or simply hybrid/combination gems.⁴⁸ This was because red jasper was believed to bestow strength, fortitude and courage on its carrier and was valued as a natural remedy to calm turbulent blood, slow down an accelerated heart rate, and curb excessive desires. It was thought to be efficacious in any bleeding and to facilitate childbirth.⁴⁹

The bird depicted is not a pelican⁵⁰ but an ibis which was famous for devouring snakes and reptiles.⁵¹ The ibis is often presented on gems while attacking a lizard or snake. Such stones were intended as apotropaic amulets that protected the owner from all kinds of evil. Naturally, they could be used to ward off snakes and reptiles in a mundane sense, but on gems the serpent symbolises

⁴⁷ On the Imperial Small Grooves Style, see Maaskant-Kleibrink 1978, 251–52.

⁴⁸ Lapatin 2011, 89; Bąkowska-Czerner, Świerzowska 2015, 4–5; Weiß 2017.

⁴⁹ Bąkowska-Czerner, Świerzowska 2015, 4–5.

⁵⁰ Hadzisteliou Price 1972, 60.

⁵¹ Bonner 1950, 53.

evil forces in general. What is more, some scholars interpret the ibis fighting a snake as an allegory of Moses who protected his people against snakes.⁵² It is possible that in the first centuries of the Christian era, the syncretisation process of various deities was progressing even further and Graeco-Egyptian elements merged with Jewish ones. It is worth noting that a tortoise, symbolically linked to Hermes, is often part of complex compositions focused on destroying evil or attracting the gaze of the Evil Eye with magical gems and simpler amulets before it reaches the owner.⁵³ Interestingly, sometimes the creatures/hybrids built from various elements that appear on those combination gems take the form of an ibis, as in the case of a carnelian in Leiden and a glass mould replicating an ancient gem in Würzburg.⁵⁴

In any case, there is a clear correlation between the type of gemstone used and the depiction engraved on it in the case of the ring formerly in the Trypanis collection. Taking into account that the Egyptian god Thoth, represented by the ibis, is combined with Hermes (in the form of a tortoise), it might be proposed that the snake attacked by the bird is Apep – an ancient Egyptian deity that embodied chaos and was an opponent of light. The coexistence of Hermes-Thoth with other solar deities on some of the magical gems mentioned above strengthens this hypothesis, since the amulets representing this syncretic deity alone are made of such gemstones as haematite or green jasper (see above) – the preferred types for these gods – and would have protected their wearers against a malevolent opponent. The combination of elements symbolising Thoth and his fight with evil, as well as those related to Hermes (one of his sacred animals – the tortoise), intended to bring peace, good fortune,

and prosperity to the owner of the gem, is particularly effective in this case.

Conclusions

As this short survey shows, Hermes-Thoth, a deity that came into being as an effect of conflating religious concepts in the first centuries AD, was much more popular on engraved gems than it may seem at first glance. This conflation was due to peoples' desires and their need for help and protection, so much so that Hermes-Thoth became the perfect candidate for addressing such supplications. The combination of Egyptian Thoth and Greek Hermes is represented on gems either figuratively (gems presenting the two deities next to each other, a single combined figure bearing the attributes of both, or a figure of one with the other substituted by its sacred animal or inscription) or in symbolic forms. It has also been shown that the *kerykeion* is not the only Hellenising element involved in Hermes-Thoth imagery on gems.⁵⁵ There has been an endless debate on how to define magical gems, and it has to be asked whether examples that do not include any inscriptions and whose iconography is based on pure symbolism rather than figural depictions should be included in this category. It would appear to be more suitable to describe them as amulets in which complex combinations of various elements are usually found, on the one hand for protection against all kinds of evil, and on the other – to gain divine help and blessing, as well as to ensure good fortune and prosperity. They nevertheless present a subtle allegory of syncretic deities, such as Hermes-Thoth, as effectively as the conflation of Thoth or Hermes with other deities (for instance, Anubis).

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⁵² Bąkowska-Czerner, Świerzowska 2015, 9.

⁵³ Lapatin 2011, 90, with a commentary to Plutarch's passage on the usefulness and popularity of such gems among the Romans (*Questiones conviviales*, 5.7.681F).

⁵⁴ Maaskant-Kleibrink 1978, no. 1083 and Zwierlein-Diehl 1986, no. 841, respectively.

⁵⁵ For a contrasting view, see Mastrocinque 2003, 197.

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A GLASS GEM DEPICTING A DYING NIOBID FROM THE NATIONAL MUSEUM IN WARSAW

ABSTRACT

The National Museum in Warsaw holds a diverse collection of glass gems, both ancient and modern. One of these, a specimen depicting a dying Niobid supported by his sister, belongs to a wider group of objects scattered throughout various European museums. Such gems were mainly produced during the 1st century BC and their decoration is derived from a fragment of a relief carved by Pheidias on the statue of Zeus in Olympia which portrays the massacre of the Niobids. The fact that these

gems were made of glass indicates that objects with such decorations were appreciated and popular. The myth of Niobe, in both Greek and Roman art, served multiple purposes highlighted by the choice of the story's motives most often used in decorations. However, the reason for the use of this particular fragment of Pheidias's relief to decorate gems as well as their popularity require additional explanation.

Keywords: gem, intaglio, glyptic art, Niobids, myth

The National Museum in Warsaw (NMW) holds an assorted collection of glass gems of different origins, both ancient and modern. Due to their formal and iconographic diversity, individual specimens of this collection have been studied by researchers such as Barbara Filarska,¹ Zsolt Kiss,² Katarzyna Suska,³ or Barbara Lichočka.⁴

By virtue of its formal characteristics as well as the iconography of its decorative elements, one of the collection's specimens⁵ may be classified as a part of a larger group of objects known from the collections of various museums throughout Europe. So far, neither the item from the National Museum in Warsaw nor this particular type of gem have been subjected to an in-depth iconographic or symbolic analysis.

The gem⁶ is made of three-coloured glass but most of its surface is green (Fig. 1). A blue band of glass, separated on both sides from the green glass by narrower white, non-translucent stripes, runs more or less across the middle of its image.

The object was transferred to the National Museum in 1954 by the Ministry of Culture and Art. It was one of more than two hundred specimens which at that time

were entrusted to the museum, moved from a repository of museum pieces. Insufficient documentation, however, makes the precise identification of the carving's original collection impossible. The archives of the National Museum's Department of Ancient and Eastern Christian Art as well as its main archives both hold surviving copies of the same document containing imprecise lists of items delivered in 1954. The inventory list indicates Greece as the gem's place of discovery. This information, however, is questionable since it is not supported by any other documentation and may refer to the mere presumption that the gem was somehow connected to ancient Greece.

The intaglio shows a pair of standing figures facing left. On the right, a woman wearing a chiton and himation is tilting her head toward the other person. On the left, a naked young man is standing with his back toward the woman, his body arching backward, his head falling back and resting on the woman's shoulder. His left arm is drooping limply along the woman's body. There is no ground line (Fig. 2).

This type of iconography is not overly common. Nevertheless, it is not unique and incomparable either.

¹ Filarska 1962.

² Kiss 1971; 1974; 1979; 1983.

³ Suska 1994.

⁴ Lichočka 2012.

⁵ Inv. no. 148372 MNW.

⁶ Dimensions: 1.4 x 1.0 cm.



Fig. 1. Intaglio with a depiction of a dying Niobid (glass, 1st century BC, National Museum in Warsaw, no. 148372 NMW). Photo by M. Kuźmiński.



Fig. 2. Intaglio with a depiction of a dying Niobid (glass, 1st century BC, National Museum in Warsaw, no. 148372 NMW). Photo courtesy of the museum.

Collections of gems from various European museums clearly show that the popularity of these types of items was moderate. Single examples of decorated gems with this type of depiction can be found, among others, in the collections of the British Museum,⁷ the Thorvaldsen Museum in Copenhagen,⁸ the National Archaeological Museum in Naples,⁹ the National Archaeological Museum in Aquileia,¹⁰ the Museum of the University of Würzburg,¹¹ or the National Numismatic Collection Museum in Munich.¹² All examples mentioned above precisely repeat the iconographic style of the gem from the National Museum in Warsaw and most were made of glass (usually of similar characteristics). The layout of figures is the same while their gestures, the proportions, position within the gem's plan, and other details are very similar. Additionally, it seems that most of these depictions were made using the same template or set of templates, since the physical differences concerning their details are so insignificant, if not downright unnoticeable, that they make the involvement of a craftsman (which would naturally lead to variations in a given depiction from piece to piece) unlikely.

The interpretation of the depiction's subject matter is somewhat problematic. Two ideas have dominated among the suggestions of various researchers, with one

being more widely accepted and seemingly more probable. According to the more plausible interpretation, the gem presents a dying Niobid supported by his sister. The alternative approach sees it as a depiction of a drunken Dionysus supported by his mother, Semele.

The Dionysus interpretation is based on a relatively distant borrowing from Etruscan art. As argued by Poul Fossing, this iconographic type has been used in depictions of Dionysus-Fufluns held up by his mother, Semele.¹³ There exist examples of bronze mirrors with figural presentations whose fragments bear quite a close similarity to the depictions from the above-mentioned gem. One such mirror, dated to the 4th century BC, shows a scene with four figures – a satyr and three Etruscan gods: Apulu, Fufluns, and his mother Semla. Fufluns, the god of plant life, health and nature was considered to be the equivalent of the Greek god, Dionysus. In the representation on the mirror, Fufluns is standing with his mother to his right, in the same pose as the figure depicted on the gem. The naked silhouette of the god is arched back with the head leaning backward and resting on his mother's shoulder. His arm, however, does not hang limply but along with the other encircles the neck of Semla¹⁴ (Fig. 3).

⁷ Walters 1926, no. 1119.

⁸ Fossing 1929, no. 390.

⁹ Pannuti 1983, no. 130.

¹⁰ Sena Chiesa 1966, no. 712.

¹¹ Zwierlein-Diehl 1986, no. 410.

¹² Schmidt *et al.* 1972, nos. 3239, 3240, 3241.

¹³ Fossing 1929, 77.

¹⁴ Simon 2006, 50; Brendel 1995, 362–363.



Fig. 3. Drawing depicting an Etruscan mirror with Fufluns and his mother (bronze, the 4th century BC, Altes Museum in Berlin, no. FR. 36). Drawing by E. Gerhard.

This is undoubtedly a significant difference in respect to the layout of the presentation depicted on the gem but not as crucial as it would seem. On all gems with this type of presentation, the left arm of the young man hangs limply. However, sometimes his right arm reaches up and embraces the woman's neck. When it comes to the gem from the NMW, this is not the case and the right arm is mostly hidden. Nevertheless, it is not out of the question that it was supposed to reach up and only due to improper pressing into the form did it become indistinguishable. This is even more probable since other examples show the right arm as forming part of the background, consequently being less pronounced in the mould and less visible when pressed into the glass.

The differences, therefore, are quite inconsiderable and the presentations show a substantial degree of similarity. The question is, however, whether the scene pressed into the gems is actually the image of Etruscan Fufluns or a theme which is iconographically similar but refers to a different subject. As previously mentioned, the second interpretation suggests that the depiction should be seen as showing a dying Niobid supported by one of his sisters. This hypothesis has already been presented by Adolf Furtwängler, according to whom the scene on the gems is inspired by a relief adorning the throne of Zeus in Olympia¹⁵ which shows the massacre of the Niobids.

This interpretation has also been advocated by Erika Zwierlein-Diehl.¹⁶

The famous statue of Zeus in Olympia, the work of Pheidias from the second half of the 5th century BC, did not survive to the present time. The way it looked can be inferred from various ancient sources – literary works (mainly a description made by Pausanias), scattered copies of the statue's decorative fragments, as well as from its drawings. According to Pausanias's description, parts of the throne of Zeus (its sides below the sphinxes) were decorated with reliefs showing Apollo and Artemis killing the Niobids.¹⁷ Other ancient works of art (mainly reliefs and vase paintings),¹⁸ which are commonly considered copies and references to the decorations from the throne of Zeus of Olympia, have also survived to present times.¹⁹ On the basis of these works, various researchers such as Wilfred Geominy²⁰ or Christa Vogelpohl,²¹ for example, attempted to reconstruct the frieze portraying the Niobids. However, although preserved copies show characteristic figures in various configurations, their original layout remains within the sphere of speculations.

One such specimen is a partially surviving relief which in 1862 found its way from the collection of Marchese Campana to that of the Hermitage Museum. Dated to the 1st century BC, it is considered a work of artists from the Neo-Attic school and may have originally served as a frieze decorating a small temple. The relief shows numerous figures, some of which also appear on other reliefs regarded as copies of Pheidias's frieze.

It also contains a pair of figures, a naked youth and a woman, in a layout and pose analogous to the presentation on the gem under discussion. The man's body is arched and leaning backward, his head resting on the woman's shoulder. The arrangement of their arms is the same as the one on the gem's depiction – the man's left arm hangs limply while the right embraces the woman's neck (Fig. 4). This pair of Niobids, not present on any other reliefs of this type, is interpreted as a sister supporting her younger brother who is in a state of agony.

The above examples show that the representations of Fufluns as well as those of a dying Niobid both largely adhere to the iconographic type present on the series of gems which are discussed here. Even though individual gems differ slightly from one another, it is possible to identify their dominant characteristics. Firstly, in all cases the man's left arm hangs down limply. On the majority of the gems, the right arm embraces the woman's neck. Where it is not visible, presumably the pressure exerted in the mould was insufficient to make it so. Secondly,

¹⁵ Furtwängler 1900, 180.

¹⁶ Zwierlein-Diehl 1986, 172.

¹⁷ Paus. 5, 11.

¹⁸ Davison 2009, 384–394.

¹⁹ Lapatin 2001, 61–65.

²⁰ Geominy 1984.



Fig. 4. Fragment of a frieze showing the massacre of the Niobids (marble, 1st century BC, State Hermitage Museum, no. ГР-4223). Photo courtesy of the museum.

the exact placement of the young man's head may also be an important detail, for there is a slight but noticeable difference between the dying Niobid and Fufluns. The head of the former falls with clear lifelessness characteristic of the state of agony. On the other hand, the head of Fufluns is sharply bent back, resting lightly on the shoulder of Semla but, at the same time, clearly held up in that position by the god. Fufluns is not losing consciousness but looking up, towards his mother.

These differences in the details of the presentations seem to indicate that, from the iconographic point of view, the hypothesis interpreting the scene from the gem as the death of a Niobid is more justified. This is supported by the arrangement of the arms and head, since on the gem from the NMW as well as on other gems of this type (if it can be determined at all with such a small presentation and, consequently, limited scope of detail) the head of the man seems to fall limply onto the shoulder of the woman, as is the case with the relief from the Hermitage.

The iconographic interpretation of both the NMW's gem and other gems of this type is more difficult because of the material from which it was made. Firstly, the impression of images into glass usually results in reduced precision and a diminished possibility to correct the details in comparison to stone gems whose decorations are precisely carved by craftsmen. Secondly, compared to stone, glass is more susceptible to mechanical damage and deterioration resulting from the passage of time. This also applies to the gem from the National Museum in Warsaw which, compared to others with the same depiction, is not particularly well-preserved. The decoration's

surface is worn quite heavily and faded, thus rendering the contours of the figures unclear, with some parts showing damage. Additionally, the gem's surface shows indentations which are the result of negative traces of air bubbles trapped between the form and the glass during the pressing process, and which effectively impaired the precision of the final work (the material could not reflect the form of the representation faithfully).

The above-mentioned limitations call for far-reaching caution regarding the interpretation of the discussed image depicted on the gem. However, as stated before, the comparative analysis seems to support the hypothesis according to which the gem presents a dying Niobid.

The gem from the National Museum in Warsaw belongs to a larger group of objects which, although dispersed between collections of various museums, share more attributes than just the same iconographic theme. All known specimens were made of glass and the majority (just like the gem from the NMW) had three colours: green glass with one blue and two white transverse bands. Some were made with the use of dark blue glass, with a white band running across. All gems are flat on both sides and oval in shape. The above-mentioned characteristics allow to credit this group of works to Italic workshops whose heyday occurred between the 1st century BC and the 1st century AD.²² It was within this period that glass gems of this shape and these specific colours were produced 'en masse'.²³

One gem allows to further narrow down the chronological horizon. This particular specimen was found

²¹ Vogelpohl 1980.

²² Maaskant-Kleibrink 1975, 108.

²³ Suska 1995, 486.

during excavations in the German town of Waldgirmes.²⁴ This site hosts the remains of Roman buildings from the turn of the 1st century BC, traces of an attempt at establishing a permanent settlement (the beginning of a town which was to be an advanced trading post as well) connected with the failed conquest of Germania during the rule of Augustus. After the Teutoburg Forest Battle, the place was abandoned. It was occasionally used during later punitive expeditions until its deliberate destruction around the year 16 AD.

The date is also a *terminus ante quem* for the making of the gem with a dying Niobid found at Waldgirmes. The recovery of the intaglio in a place so distant from Italy where it was made indicates that enough time had passed for gems with this type of presentation to be produced in greater numbers and spread throughout the farthest reaches of the empire. Although it cannot be ruled out that gems decorated with the scene of a dying Niobid were also produced during the 1st century AD, it seems that the second half of the 1st century BC should be treated as the main period of their manufacture.

There is, therefore, an interpretation of the representation's theme and a relatively precisely defined geographic and chronological context in which this type of gem functioned. Such a consistent group of ancient specimens inspires more general reflection which would be impossible in the case of a unique item whose characteristics depend solely on the abilities of its maker and the tastes of its buyer. Naturally, there are questions regarding the choice of this mythological theme as the subject of the decoration of gems and the reasons for the popularity of this particular fragment of Pheidias's frieze so eagerly reproduced on numerous pieces.

The myth of Niobe enjoyed relative popularity in both Greek and Roman art. Other than the frieze of Pheidias, it is mainly represented in vase paintings²⁵ and relief carvings on sarcophagi.²⁶ There is also no shortage of full-figure sculptures representing the death of the Niobids, the most recognisable being objects from the Uffizi²⁷ Gallery in Florence and the sculptures discovered in 2013 in Ciampino.²⁸ The myth about Niobe and the punishment of her children is also present in various ancient literary works,²⁹ with two dominant motives recalled by works of visual art and ancient literature: the despair of the severely punished mother, and the cruel and violent death of her children. Individual works differed through the choice of the selected, emphasised theme, which in turn depended on the inventiveness

of their creators and the expectations of those who had commissioned them.

The gem from the National Museum in Warsaw is a part of a larger group of antiquities characterised by the use of the same iconographic theme and the similarity of materials. Noteworthy is the fact that all known specimens are made of glass, with differences within the group lying solely in the variation of individual pieces' colours. The characteristic trait of glass gems is the ease with which a particular theme can be reproduced. By pressing the decorations into the glass from ready-made forms, it was possible to create a series of objects with nearly identical parameters. As a result, mass production of gems decorated with the same iconographic theme was possible.

The above technical characteristic draws attention to the fact that gems decorated with the depiction of a dying Niobid must have enjoyed relatively strong interest. Otherwise, they would not be reproduced on such a scale. What is more, the large popularity of ancient decoration dealing with the thematic subject of the myth of Niobe is a rather unique occurrence. Its symbolic overtones certainly must have oscillated around the values mentioned above. It seems, however, that they did not have the greatest impact on its noticeable popularity.

First and foremost, the group of gems with this representation is a good example of the general tendency for reproducing, in whole or in part, the frieze of Pheidias. There are numerous surviving reliefs from the early Imperial Period which had replicated figures from the frieze with the Niobids in various configurations. Therefore, this portion of the famous statue of Zeus from Olympia must have been highly valued and easily identified by educated people.

There is still the question of why this particular fragment of the frieze enjoyed such popularity with respect to decorations. The composition of the presentation of these two figures was undoubtedly significant. Both are standing quite still, thus creating an image with strong vertical lines. The same cannot be said about all of the figures depicted on the frieze, since a significant number of them are portrayed in dynamic poses, in motion, or with their limbs extended to the side. The bodies of some of these figures are stretched out horizontally while the majority of compositions used in decoration rely on the proper natural adherence of the presentation to the customary oval shape of the gem. The figures in question are located centrally, and harmoniously fill the available space.

²⁴ Becker 2003, 340.

²⁵ Cook 2013, 42; Denoyelle 1997; Trendall 1972, 309.

²⁶ Zanker, Ewald 2012, 70–74.

²⁷ Geominy 1984, 28–32.

²⁸ Coates-Stephens 2013, 341–349.

²⁹ Hom. *Il.* 24; Apollod. *Bibl.* 3, 5; Ov. *Met.* 23; Wright 2019, 105–106.

As far as this iconographic theme is concerned, the fact that we are dealing with a compact, smaller scene within a larger representation may also be significant. The majority of the other figures on the frieze appear individually. In this case, however, two people are depicted in direct interaction with one another. Regardless of all of

the symbolic connotations possibly evoked by the image, it is simply more attractive than similar portrayals of the remaining portions of the frieze. At the same time, this motive remains so characteristic that even its separation from the original context does not make it abstract and unintelligible.

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AVGIA CHURCH (BATUMI, GEORGIA)

ABSTRACT

The church discussed in the paper is situated in Avgia, on the outskirts of Batumi. It is an early Christian period hall-type church with northern and southern wings. The ground plan of the whole structure resembles the well-known layout of the *croix libre*. The whole building is 23.85 m long and 19.0 m wide – including the arms. It has a projecting semi-circular apse whose radius is 6.05 m. The main space of the church is divided into three parts. It consists of a transverse hall, which may have operated as a narthex, a hall, and an altar apse.

The floor of the structure was covered with pinkish lime mortar, a mixture of small pebbles and ceramic powder. The only central entrance to the church was located on the west side. The northern annex had an entrance on the west side. The northern annex had an entrance in the north-western corner, and the southern one – in the south-eastern corner. The church seems to have been built of rubble stone. The construction style, layout, and archaeological evidence from the site narrow down its chronology to the 5th and 6th centuries AD.¹

Keywords: Byzantine, western Georgia, Avgia, early Christian church

The research work of an archaeological expedition financed by the Ajara Cultural Heritage Preservation Agency began in June 2015 at Akhalsopeli, located on the suburbs of Batumi. The investigation of an early medieval church was the main purpose of the fieldwork undertaken during the expedition. According to the modern administrative division, Akhalsopeli is divided into two parts. One belongs to the Khelvachauri Municipality and the other to Batumi. The explored monument is located in the Avgia² precinct (50 Avgia Street), in the home garden of a local resident – Tamaz Sharadze.

An accidental discovery of Byzantine tiles and brick sherds followed by subsequent visual surveying of the site revealed traces of stone masonry. According to local inhabitants, the remains of a fairly well-preserved building were visible at the spot until the second half of the 20th century. Later, the building was demolished and its stones were used for other construction activities. The expedition carried out small-scale fieldwork in order to determine the full extent of the monument.³

The two-week observational archaeology excavation uncovered quite a large basilica. It appears that the

¹ A professor from the Ilia State University, Guram Kipiani, set the chronology of the whole construction to the 5th century AD. Other scholars consider the traces of some reconstructions as belonging to the later phase of the 6th century AD.

² It is quite possible that the toponym of Avgia derives from the Greek word ἄγιος, i.e. 'saint'.

³ The study area included the following squares: NO: 1-3, 11-13, 21-23, 31-33; SO: 1-3, 11-13, 21-23, 31-33; SW: 1-3, 11-13, 21-23, 31-33; NW: 1-3, 11-31; the dimensions of the squares were 4 by 4 m.

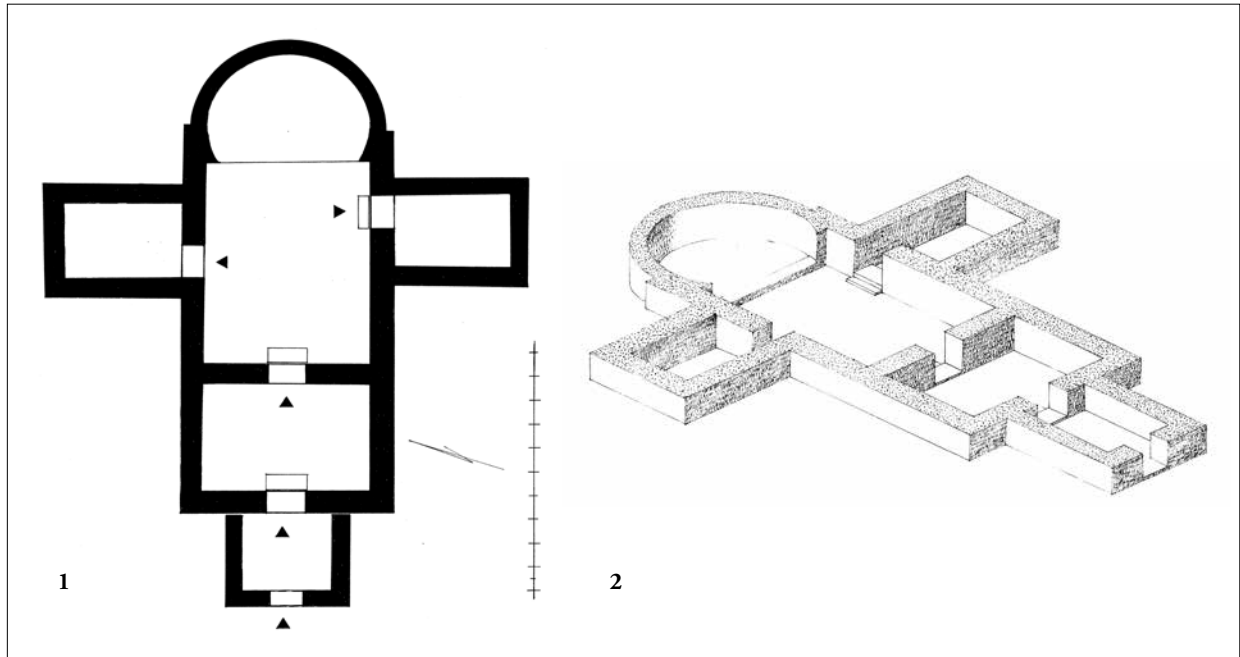


Fig. 1. Avgia church plans (compiled by G. Kipiani).

building in question resembled temples from the early Byzantine period in terms of the technique, layout, and archaeological material. The excavations revealed a transept hall (Figs 2–3) of an initial geometric cruciform shape, the so-called *crux immissa*, also known as the ‘crucifix’ and ‘long cross’ (*crux immissa oblonga*). Such transept halls were common in the early medieval period and can be found in almost every periphery of the Byzantine Empire. There were two basic types of transepts: the domed and the undomed.⁴ Domed basilicas in the Byzantine Empire emerged quite early:⁵ the evolution from a flat-roofed system to arched roofs created the need for more sophisticated solutions, hence the domes.⁶ It is considered that this type of design was based on the schemes of martyries and rock-carved tombs.⁷

The Avgia church can be classified as an undomed basilica. None of the stones found in the ruins can serve as evidence for the existence of vaults. The walls of the temple and the intersections of the hall and the transepts would hardly be strong enough to bear the weight of a dome. The building shows no evidence of pilasters. It must have had a simple, coarse, flat ceiling, typical for an early western basilica structure. The structure of the building – which is also similar to the one from Abkhazia

– generally dates back to the early medieval period.⁸ A largely similar church from the northern Black Sea coast belongs to the same era.⁹

The Avgia church site differs from other cultic buildings in only one feature: the narthex. It was not added later so it must have been built together with the church (Figs 1–2). The narthex is separated from the hall with a 70 cm wide septum. The dimensions of the narthex door aperture equal those of the main entrance of the hall. The western part of the narthex has a square extension which could have been added later. However, the chronological discrepancy between the main structure and the extension must have been minimal. The extension walls are less than 60 cm wide and a bit lower than the main nave. Only the lowest structure is preserved. There are no traces of a door aperture. This seems to be a ‘replica’ of the gate-exonarthex which may have been destroyed before the construction was completed. The domed structure in Najakhavo (Martvili municipality) shows a similar extension.¹⁰

Some of the walls have survived up to 2 metres in height. They are made of rubble, unworked stones and lime mortar (a mix of ceramic powder, pebbles and crushed rocks). The rows are regular. The key areas are well bound and strengthened with sandstone quadras.¹¹

⁴ Restle 1979, 68–73, figs 42–44.

⁵ Stanzl 1979, 79–92.

⁶ Vul’f 1900, 315.

⁷ Bandmann 1956, 187.

⁸ Shamba, Shamba 1985, 19–22.

⁹ Romančuk 2005, 26.

¹⁰ Zakaraia, Kapanadze 1991, 54–56, fig. 91.

¹¹ The so-called *opus incertum*.



1



2

Fig. 2. Views on the Avgia church from the east (1) and west (2) (photo by G. Dumbadze).

The apse walls are a somewhat different case: they were constructed using carefully selected and comparatively small square stones of equal sizes.¹² The door embrasures are of the same width – 1.5 metres. Interestingly, the door embrasures of the northern and southern extensions are intentionally positioned outside of their common axis of symmetry and misaligned: the southern one is cut out in the eastern part, and the western one – in the northern part. The floors were laid at different levels. The difference between the floor levels is about 20 centimetres and the same quality low step stone tiles are laid in front of

the embrasures (Figs 1–2). The floors of the main and intersected naves are made of a mix of lime mortar and ceramic powder.¹³ The data obtained at one spot confirmed that the interior walls must have been plastered with the same material, which is quite natural. The apse of the church is explicitly horseshoe-shaped and is similar to the early Christian Cappadocian apses built according to the same scheme.¹⁴ The architecture of the building is entirely based on the Roman foot.¹⁵ As a result, the total length of the church measured along the E-W axis is 23.7 metres (79 Roman feet), and the total width

¹² The so-called *opus quadratum*.

¹³ The so-called *opus signinum*.

¹⁴ Restle 1979, figs 32, 34, 39.

¹⁵ The Roman foot is the same as the Attic foot but subjected to a minor change. In consequence, its practical length is 0.3 m.

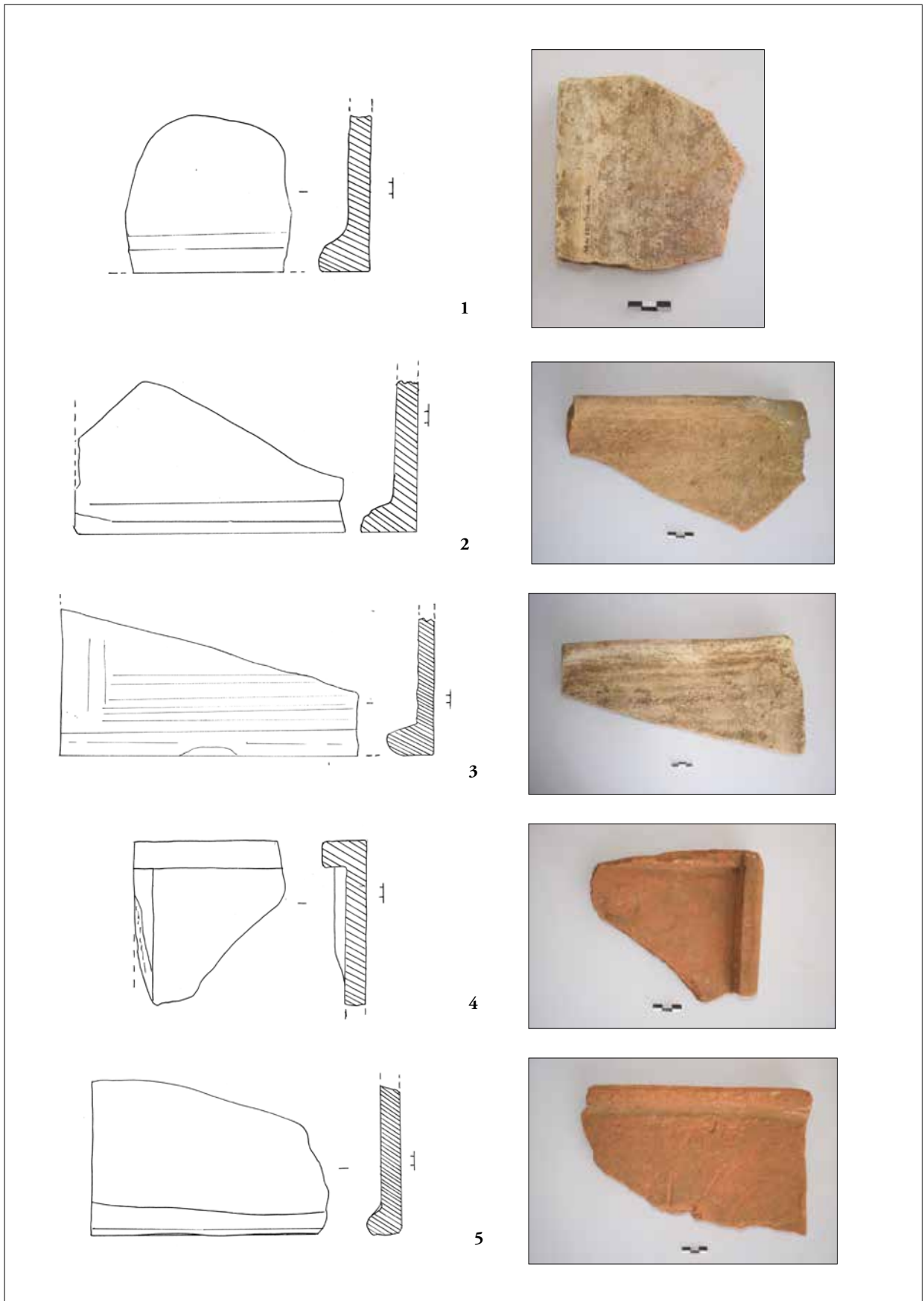


Fig. 3. Building ceramics discovered during the excavations of the Avgia church (compiled by G. Kipiani).

(i.e. the N-S length of the transept arm) is 19.2 metres (64 feet).

Similarly, the western extension of the temple is 3.9 metres long (13 feet) while the wall is 90 centimetres (3 feet) wide. Such rules can be observed almost everywhere at the site. In short, all of the details in the temple were designed according to Roman measurements. It is a common feature because the early Christian civilisation absorbed Roman ideas in all areas. The same can be said in regard to almost any monument from that period.¹⁶

The building had been covered with wooden structures bearing the burden of flat and striated or grooved tiles. It must be noted that in Georgia this method of roofing is rarely found. The roofing method from the Avgia church is similar to that of the three-nave basilicas found on the territory of the Nekresi settlement, the Chabakauri and Dolochopi precincts.¹⁷

As is known, Georgian basilicas or hall temples built after the 5th and 6th centuries AD are roofed with stone vaults. This roofing method must have been inspired by the Roman-Byzantine world of the 4th and 5th centuries: the roofs of ancient basilicas in the central and eastern Christian provinces of the Roman Empire were based on wooden constructions.¹⁸

Archaeological Evidence

The finds unearthed at the site of the Avgia church include construction materials: tiles, bricks and floor tiles. Several potsherds, jugs, amphora necks and bases, as well as fragments of glass, bronze, and metal works have been found on the site. In the altar, i.e. in the middle of the apse, three iron crosses have been uncovered. Judging from their analogies, all of the items can be dated to the 5th and 6th centuries AD.

Tiles of the Solen type represent the majority of materials in regard to construction ceramics (Fig. 3. 1–5). The majority of these are made of lilac (Avgia. 2015/5, 23–29, 32, 65, 69, 83, 85, 92–94, 97–98, 100, 103, 105–108), orange (Avgia. 2015/2–3, 19–22, 30–31, 33–34, 64, 91, 101) or brown (Avgia. 2015/4, 6, 18, 77, 89–90, 95–96, 99, 102, 104) clay with a low, turned up side. Sherds of striated tiles were not very common (Fig. 4. 1). Most of them were made in an important trade and transit centre of the southern Black Sea coast, Sinope. Ancient Colchis had close trade and economic ties with that particular town since the Classical period. As shown

by archaeological discoveries, these relations continued until the early medieval period. Medieval tiles are similar to those from the Classical period. However, certain distinctive features can be observed. Namely, the early medieval tile is smaller and thinner when compared to the classical one. Moreover, it is of poorer quality. According to current knowledge, during the early medieval period tiles were used to roof buildings which received much care and attention. Cultic buildings also had tiled roofs.¹⁹

The group of construction ceramics is followed by a set of floor tiles (Fig. 4. 2–5). All are brown and have a rectangular shape (Avgia. 2015/16–17, 66–67, 71, 80, 109–110). An animal foot mark is preserved on one of the tiles (Fig. 4. 3); in the case of two other tiles, a right-angled triangle is cut out on one of the sides (Fig. 4. 5).

Household ceramics are represented by various fragments of *kvevris* (large earthenware vessels) which are made of brown clay (Avgia. 2015/7, 54, 84). Their surface is decorated with relief mountain ranges.

Some fragments of *dergis* (large pots) have also been uncovered at the site (Fig. 5. 1–2). They have turned-out triangular or rectangular rims, short necks and straight bodies (Avgia. 2015/1, 81, 87). One of them has three grooved crosses (Fig. 5. 1).

A comparatively large number of pots (Fig. 5. 3–6) are represented by pieces of rims, walls and handles. They have typical flat and slightly outspread rims, low necks, as well as rounded and wide flat ears (Avgia. 2015/35–36, 38–39, 42–44, 50, 53, 82). A small number of jugs (Avgia. 2015/41, 51, 57, 61, 68, 711, 18, 85) have been obtained as well. They have flat bases (Fig. 6. 1) and the clay comes in two colours: a) pinkish-orange and b) brown. A pan-like sherd of one vessel's rim wall is made of brown clay and has a disproportionate mouth and a rounded body (Fig. 6. 2).

Another group comprises household movable amphorae. The local Colchian concave amphorae are represented as sherds of rim necks, and ears (Fig. 6. 3). They are similar to the finds uncovered in the fort of Gonio-Apsarus and date back to the 5th and 7th centuries AD.²⁰ Some rim neck and ear sherds of grooved orange clay amphorae have also been uncovered at the site (Fig. 6. 4–5). They bear quite a lot of similarities to the Gonio-Apsarus finds, as well as the Byzantine examples dated to the 5th and 6th centuries AD.²¹

Among other finds, handles of various bronze items have also been uncovered. All of them are round-edged (Avgia. 2015/12, 14). According to the context of the

¹⁶ Gartkiewicz 1990, 71–75; Krautheimer 1984, 102–104; Kipiani 2009, 751–752.

¹⁷ Bakhtadze *et al.* 2015, 66–67; Bakhtadze 2018, 109–110.

¹⁸ Bakhtadze 2018, 109–110.

¹⁹ Jgamaia 1980, 18–21.

²⁰ Khalvashi 2002, 20; Mamuladze *et al.* 2012, 237–243.

²¹ Khalvashi 2002, 42–58, fig. 3; Mamuladze *et al.* 2012, 237–243.

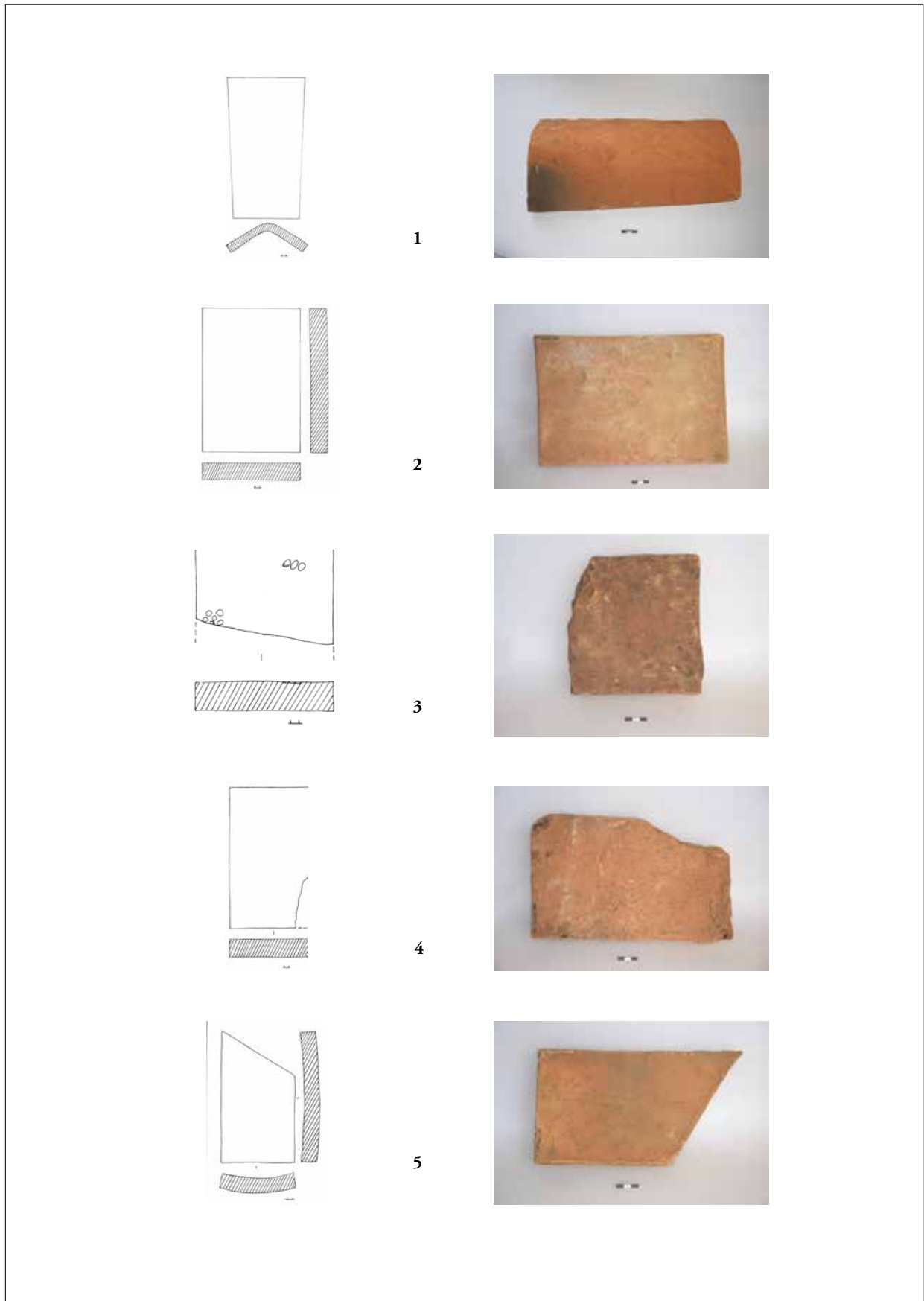


Fig. 4. Building ceramics discovered during the excavations of the Avgia church (compiled by G. Kipiani).

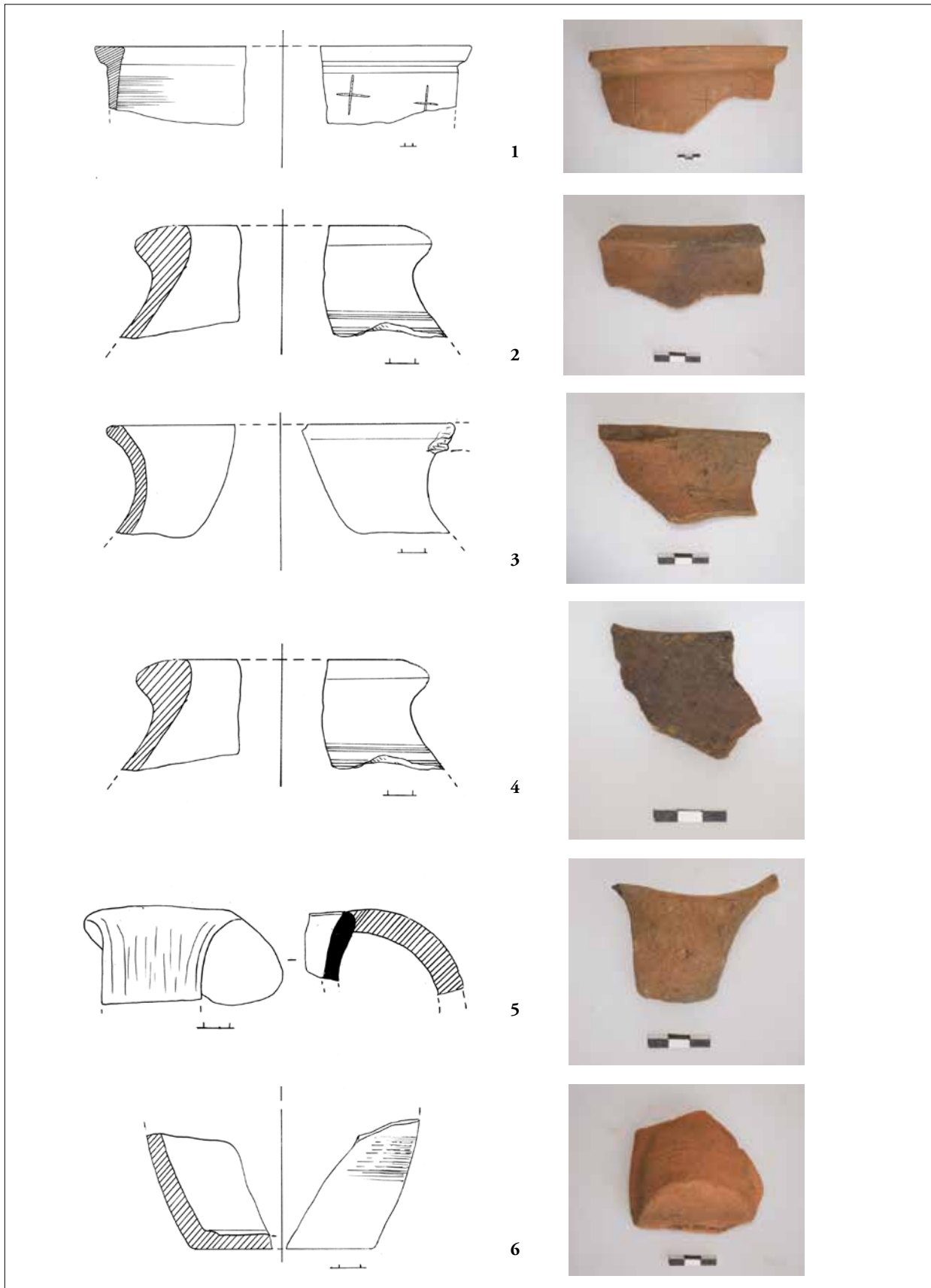


Fig. 5. Household ceramics discovered during the excavations of the Avgia church (1–2: dergis (large pots), 3–6: pots) (compiled by G. Kipiani).

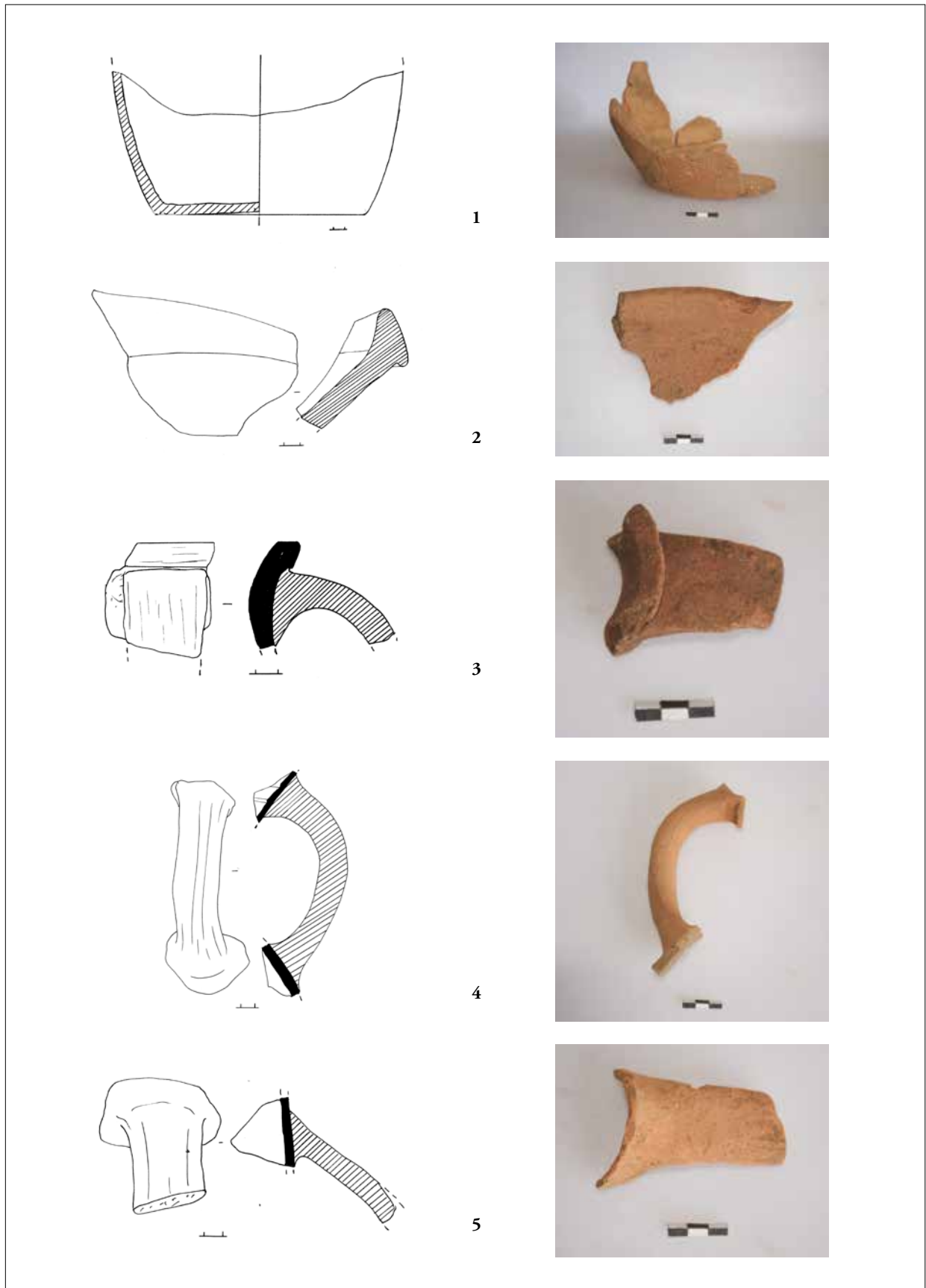


Fig. 6. Household ceramics discovered during the excavations of the Avgia church (1: jug, 2: pan-like dish, 3–5: amphorae) (compiled by G. Kipiani).

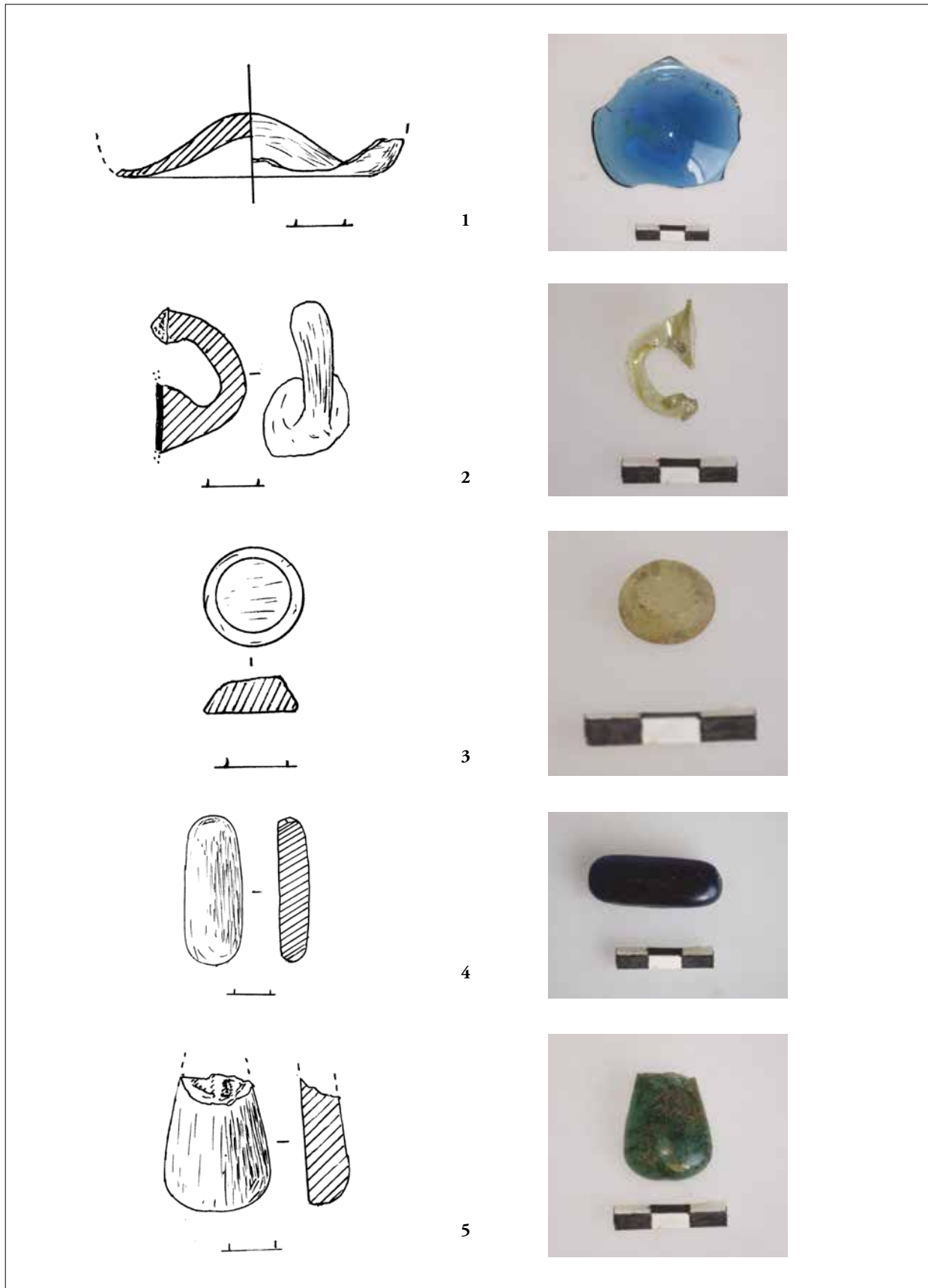


Fig. 7. Archaeological items discovered during the excavations of the Avgia church (1: cup base, 2: glass lamp base, 3: glass gem, 6–8: crosses) (compiled by G. Kipiani).

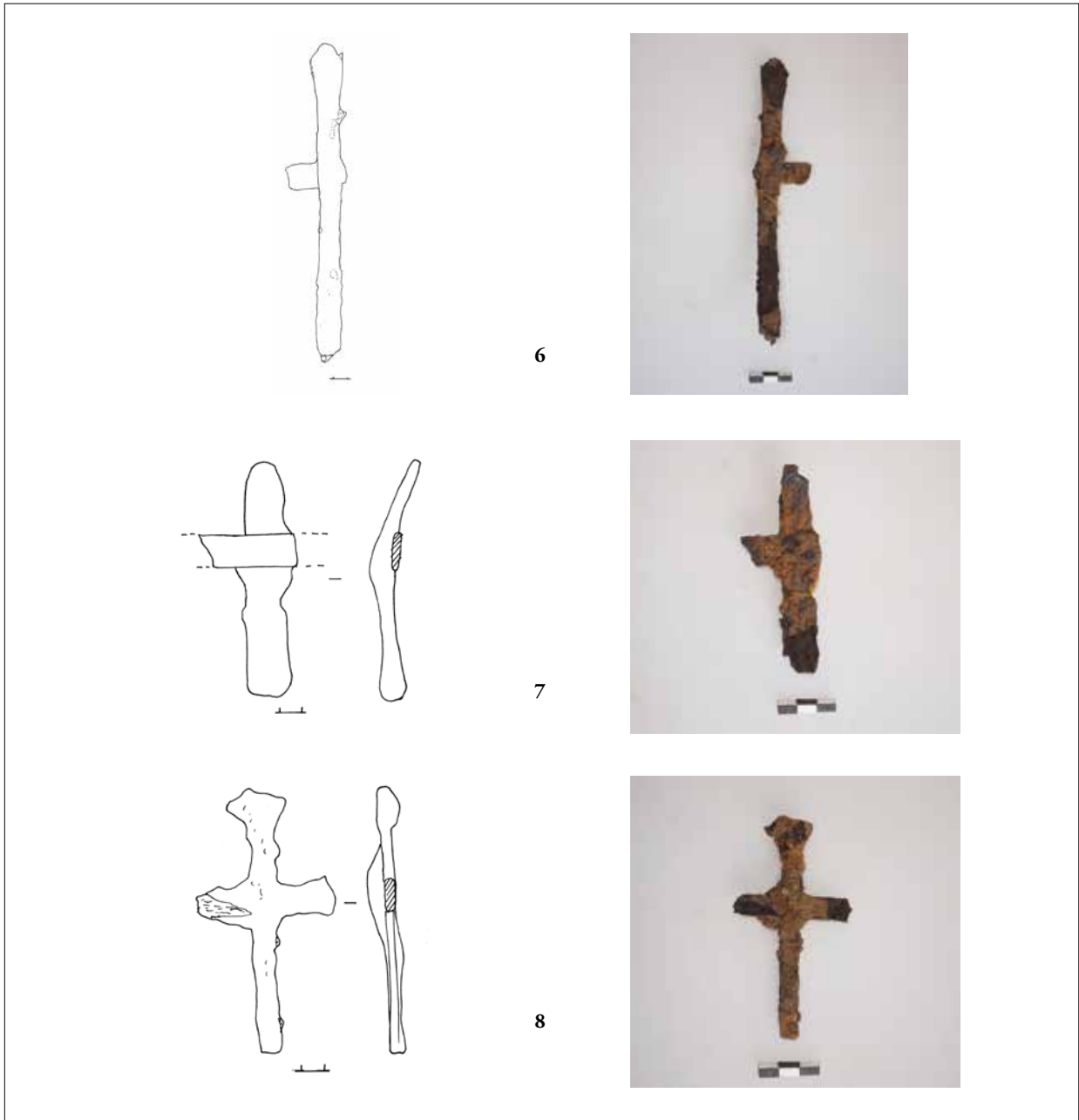


Fig. 7. Archaeological items discovered during the excavations of the Avgia church (1: cup base, 2: glass lamp base, 3: glass gem, 6–8: crosses) (compiled by G. Kipiani).

discovery, these items should be dated to the 5th and 6th centuries AD.

Considerably fewer glass objects (Avgia. 2015/4, 40–41, 45, 59) have been found. The base of one glass vessel is fully preserved. It is characterised by a thin blue wall and a conically incurved base (Fig. 7. 1). As is known, this type of glassware had a dual purpose: it was used

for drinking or as a lamp. The use of such a cup lamp is evidenced by the floor mosaic of the Hammat Tiberias' Synagogue, Israel.²² The mosaic is dated to the 4th century AD and displays a seven-branched menorah.²³ The use of this item as a lamp can be evidenced by the monuments from Karanis (Egypt) and northern France.²⁴ Their use as drinking vessels can be proved by the finds of Vojvodina,

²² Crowfoot, Harden 1931, 197–200; Antonaras 2008, 24.

²³ Ancient Glass 1998, 24; Antonaras 2008, 24.

²⁴ Antonaras 2008, 24.

Serbia,²⁵ Thessaloniki, Greece²⁶ and Osenovo, Bulgaria.²⁷ These types of drinking vessels can be dated to the 4th and 5th centuries AD.²⁸ The Avgia vessel is dated to the 5th century AD.

A single piece of a dish handle (Fig. 7. 2) must have once been a part of a lamp. Glass lamps were quite popular in the early Christian era. The difference between a lamp and a drinking vessel was just a tiny handle attached near the rim which allowed to hold a hook that was attached afterward and served to hang it on the wall.²⁹ Based on an analogous item held by the Thessaloniki Museum, the handle of the Avgia lamp can be dated to the 5th century AD.³⁰ In the 5th and 7th centuries, glass lamps were quite common along the eastern Black Sea coast.³¹

Uncovered glassware includes a round, flat-surfaced greenish-yellow gem imitation (Fig. 7. 3) and two gems

with different crosses. One of these is rectangular in shape, round-edged and made with emerald (Fig. 7. 4), while the other is green with wide endings (Fig. 7. 5).

In the inner space of the church, three iron crosses were uncovered (Fig. 7. 6–8). All three are damaged (Avgia. 2015/46–47, 60), but one is relatively well-preserved (Avgia. 2015/60). All three arms of the cross are equally distant from the centre, while the fourth – the lower one – is elongated, and thus the arm ends are difficult to recognise (Fig. 7. 8).

As far as other artefacts are concerned, a fragment of a nail (Avgia. 2015/56) and a medium-sized grey stone core (Avgia. 2015/76) have been unearthed. On the basis of their analogies, all of the objects can be dated to the 5th and 6th centuries AD. Thus, in terms of architecture, construction technique and archaeological material, the Avgia church can be dated to the 5th and 6th centuries AD.

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²⁵ Šaranović Svetek 1986, 61, no. 52, pl. IV.1.

²⁶ Papanikola-Bakirtzi 2002, 532–533.

²⁷ Minčev, Georgiev 1981, 11–12, pl. VIII.1.

²⁸ Antonaras 2008, 23–24, figs 3.1, 4.1; 2010: 387, fig. 4.

²⁹ Antonaras 2010, 388.

³⁰ Antonaras 2008, 24, figs 3.2ii, 4.2ii; 2010, 388, fig. 6.

³¹ Antonaras 2008, 24; Papanicola-Bakirtzi 2002, 285, no. 299; Kissas 1988, 209, fig. 4; Uboldi 1995, 124–125, form V.

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PLASTER CASTS OF ANCIENT SCULPTURES FROM THE COLLECTION OF THE UNIVERSITY OF WARSAW. MARKINGS AND ORIGINS

ABSTRACT

Despite its short history, the royal-university collection grew significantly: from 542 casts purchased by Stanislaus Augustus to over 750 sculptures finally gathered at the University. For years, agents purchasing artwork for Stanislaus Augustus, university professors and museum directors tried to cooperate with numerous casting workshops throughout Europe which produced copies of prominent ancient works of art. Plaster casts were especially important to the University of Warsaw. For a long time, they functioned as *ars*, a priceless collec-

tion presented to the wider public at the Column Hall, as well as *educatio* when they were utilized as a basic educational tool for students of painting, sculpture or architecture. This paper is devoted to the markings used by casting workshops that manufactured some of the surviving casts. Such designations allow not only to track contacts with European workshops but also to determine the origins of particular works and the exact time of their creation or the name of the caster.

Keywords: plaster casts, gallery of plaster casts, collections, cast markings, University of Warsaw

The collection of plaster casts of ancient and modern sculptures founded by King Stanislaus Augustus has been the subject of numerous scholarly works.¹ The beginnings of the collection date back to the time of Stanislaus Augustus.² After the king's death, it was passed on to Prince Józef Poniatowski and his heirs, and was later bought by the Duchy of Warsaw's Chamber of Education in 1811 with the intention of making it a part of the newly-planned School of Fine Arts.³ Past studies have devoted a lot of consideration to the Faculty of Sciences and Fine Arts of the Royal University of Warsaw, which became the owner of Stanislaus Augustus's casts in 1817, as well as to the Gallery of Plaster Casts, one of the Faculty's cabinets.⁴ Scholars of the subject have often stressed the value of the royal-university collection that justified its establishment, continued expansion, and the efforts of

subsequent curators aimed at maintaining its safety. The casts were especially significant to the University of Warsaw as an educational tool. They also contributed, to a much broader extent, to the development of Polish artistic culture.⁵ However, although the issues related to the collection as a whole have been thoroughly investigated, many key facts concerning the individual works are still unknown. An analysis of the collection and its expansion undoubtedly provokes questions regarding the origins of individual pieces, the dates of their creation and arrival in Warsaw, as well as the possibility to attribute particular casts to individual artists or casting workshops.

To date, the markings found on the pedestals of sculptures as well as on reliefs, i.e. the designations that provide a link to the workshops in which they were made, have received very little attention. Nevertheless, the im-

¹ Mańkowski 1976; Korotaj, Mikocki 1989; Kowalski 2008, 13–44; Miziołek 2012, 13–75; Mikocka-Rachubowa 2016, 13–88; Kowalski, Żelazowski 2019, 383–418.

² There are accounts stating that it was the king who began to purchase casts of ancient sculptures at the beginning of 1765; see Kowalski 2010, 37.

³ Korotaj, Mikocki 1989, 13.

⁴ Kowalski 2008, 16–17.

⁵ Kowalski 2012, 112–125.

portance of identifying casting signatures in the context of the discussed collection must be stressed since in many cases these can provide information not included in surviving lists or inventories. Studies on these so-called stamps should address their shape, size, and displayed texts. Emblems and the material used for making the signatures are other significant elements. As part of the present study, stamps found on surviving royal-university collection casts were gathered, compared, and described. Their identification was facilitated through the use of information contained within numerous publications devoted to the collection as well as archival documents and iconographic materials concerning the analysed objects.

In Poland, collecting ancient works of art reached its apogee during the reign of Stanislaus Augustus (1764–1795). In establishing his collections, the king was undoubtedly inspired by the resplendent private and public collections of antique sculptures that became popular in Italy as early as in the 16th century, as well as the collections of absolute rulers such as Catherine the Great or Augustus III whom he had met on several occasions prior to his election.⁶ Despite the financing of the establishment of a casting workshop in Warsaw and the employment of Italian sculptors, Davino Cristofani and Giuseppe Pellegrini,⁷ the majority of the plaster copies that make up the collection of Stanislaus Augustus were manufactured by foreign studios. According to literature, Italy, and Rome in particular, i.e. one of Europe's most significant markets for the export of antique works of art in the 18th century, played a crucial role in shaping the royal collection.⁸ In connection with a growing interest in the art of Antiquity and the need for its mass reproduction in the studios of well-known artists, such as Cavaceppi, Penna, Righetti or Albacini, other workshops specialising in copies of famous works were established.⁹ Insights into the process of gathering collections at the Polish court can be gained through offers and lists sent to the king from such workshops,¹⁰ as well as letters discussing purchases of artwork sent by such royal agents as Jan Christian Kamsetzer, Ignazio Brocchi, Marcello Bacciarelli¹¹ or August Moszyński himself, the first man “used by the King to initiate the gathering of his collection”,¹² worthy of mentioning here. Letters from the Italian Peninsula as well as a detailed inventory, most likely created by Bacciarelli,¹³ provide insight into the atmosphere accompanying the royal purchases and the

importance of the collection. The surviving letters, lists, and sketches of sculptures often allow to determine the creators of particular plaster copies of ancient works of art bought during this period.¹⁴

The establishment of the royal collection of artwork was meant to go hand in hand with the funding of the Fine Arts Academy in Warsaw. The first plans for this institution, intended for the education of artists, were developed as early as in 1766 by Marcello Bacciarelli, previously connected with the Fine Arts Academy of Dresden.¹⁵ Clearly, inspiration for the planned Academy was drawn from the illustrious schools established in Italy – the Florentine ‘Accademia del Disegno’, Rome’s ‘Accademia di San Luca’, Milan’s ‘Accademia Ambrosiana’ or Louis XIV’s French Academy in Rome, where collections of plaster cast copies of famous works of ancient art were made for educational purposes.¹⁶ Unfortunately, the dream of Stanislaus Augustus involving the creation of such a centre for the education of artists never came to pass. This did not, however, put a halt to the King’s ambitious plans. The bulk of art-related education was moved to the royal court in Warsaw, with the foundations laid by the establishment of the *Malarnia* and *Skulptornia* (Painting and Sculpting Workshops) – a school of painting and sculpture at the Royal Castle under the supervision of Bacciarelli.¹⁷ The plaster copies mentioned above that fulfilled the intentions of the Academy’s founder became the main educational instrument for young art students.

At the end of the reign of the last king of Poland, the collection of plasters consisted of “542 pieces whose value was estimated at 1,800 red złote (Polish ducats) and contained, among others, exact full-sized copies of famous statues: Apollo Belvedere, the Laocoön Group, Venus de’ Medici, the Dying Gladiator, Castor and Pollux, Silenus and Bacchus, Ceres, and others”.¹⁸ Detailed information regarding the shape of the collection as well as the gathered casts can be found in the aforementioned inventory prepared by Bacciarelli. Apart from copies of the most important sculptures of Antiquity, the collection reportedly also contained busts of outstanding personages of Polish (a set of eighteen works) and world renown, as well as fragments of sculptures and casts of body parts. In 1817, a year after the establishment of the Royal University of Warsaw and in accordance with the ideas put forth by Moszyński and Bacciarelli, the Faculty of Sciences and

⁶ Haskell, Penny 1981, 7–15; Godziejewska 1991, 80; Mańkowski 1976, 23.

⁷ Mikocka-Rachubowa 2016, 17.

⁸ Mikocka-Rachubowa 2016, 13–17.

⁹ Małcużyńska 1974, 8–9.

¹⁰ Mikocka-Rachubowa 2016, 32–47; Małcużyńska 1974, 8–9.

¹¹ Małcużyńska 1974, 8–9.

¹² Mańkowski 1976, 23–24.

¹³ AGAD, the ‘Zbiór Popielów’ collection, manuscript 220.

¹⁴ Mikocka-Rachubowa 2016, 32–46.

¹⁵ Kowalski, Żelazowski 2019, 384–385.

¹⁶ Haskell, Penny 1981, 17; Jones 1997, 115, 126.

¹⁷ Godziejewska 1991, 81–82.

¹⁸ Sobieszkański 1849, 267.

Fine Arts, partially staffed by the graduates of the castle's *Malarnia* and *Skulptornia*, was inaugurated.¹⁹ The collection of plasters was moved from the *Malarnia* and *Skulptornia* to the Kazimierz Palace and then to its permanent location at the Column Hall (currently the seat of the University of Warsaw's Faculty of History).²⁰ For years, subsequent curators of the University's Gallery of Plaster Casts continued the royal tradition of importing casts made in the best workshops of Europe.

An analysis of the royal-university collection of plaster casts suggests that the copies of sculptures purchased by Stanislaus Augustus probably did not bear any workshop markings. It is known that along with a growing interest in copies of ancient works of art, unauthorised workshops started to crop up in many European cities, taking advantage of the reputation of famous studios and encroaching on their renown. In 1854, however, an obligation was introduced to stamp all copies created in recognised ateliers in order to prevent the practice of forging plasters²¹ and this precaution spread throughout all of Europe. The most important studios associated with royal museums had their own designations and, with time, private workshops also adopted this principle by 'signing' their casts with their own unique stamps or seals.²² It is worthy of a mention that the design of these markings often evolved and changed over time or in accordance with a given political situation. For this reason, the present analysis considers only casts obtained to fill the needs of the newly-formed Warsaw collection of plaster casts (1816–1939).

The first stamp-bearing plasters appeared in the royal-university collection together with the sculptures purchased in Paris in 1820 and 1830 for the newly-established Faculty of Sciences and Fine Arts. The reason behind the decision to buy casts in the French capital has not been given much consideration. It was most likely due to the fact that during the 19th century, Paris was one of the prominent markets that dealt in copies of ancient sculpture whose operation was in large part connected to that of *Le musée royal du Louvre*.

The official beginnings of the public museum at the Louvre can be traced back to the time of the French Revolution (1789–1799), a turbulent period of radical socio-political and cultural changes. The New Republic

demanded wider access to the arts, especially to antiques which the old regime reserved for its sovereigns.²³ On 10 August 1793, the *Muséum central des arts de la République* was inaugurated.²⁴ Interestingly, the French Revolution was associated with a conviction that the tradition of Antiquity best reflected the ethos – freedom, heroism, republican patriotism – of the New Republic, thus the language and culture of the revolution was steeped in ancient phraseology²⁵ and the museum was filled with Greek and Roman works of art. On 14 December 1794, a year after the opening of this temple to art, the arts commission ordered plaster copies of forty of the most beautiful ancient sculptures then held at the museum. The task was accepted by two Tuscan *formatori*: Jean-André Getti and Étienne Micheli.²⁶ The event was associated with the establishment of a famous plaster casting studio and the beginnings of the first public collection of plaster copies in Paris.

In 1816, after the end of the revolution, Louis XVIII transformed the *Muséum central des arts de la République* into *Le musée royal du Louvre*. Two years later, the position of the royal *formatore* was bestowed on François-Henry Jacquet, one of the most famous and respected French plaster makers. Jacquet rapidly monopolised the market and gained exclusive rights to create forms for casting marbles contained at the Louvre.²⁷ His list of plasters, published in 1845 and offered for sale, and at the same time the first printed sales catalogue of Louvre's works, confirms the commercialisation of the royal workshop. Interestingly, this list relates both to the artist's private collection as well as that of the museum.²⁸ The French *formatore's* catalogue became well-known throughout Europe, making its way to England²⁹ and, in all likelihood, to Warsaw as well. According to the surviving inventories prepared by the curator of plaster casts and drawing instructor at the University of Warsaw's Faculty of Sciences and Fine Arts, Professor Antoni Blank,³⁰ it was Jacquet who authored ca. 123 plasters acquired in Paris for the Polish collection in 1820 and the seventeen pieces obtained ten years later.

With respect to the present deliberations, one anecdote is especially interesting: the inglorious purchase in 1820 when Louis Letronne, a French-born artist and owner of the first professional lithography studio in Poland,³¹

¹⁹ Wazbiński 1992, 42.

²⁰ Wazbiński 1992, 42.

²¹ Rionnet 1996, XVI.

²² Rionnet 1996, 40–42.

²³ Rionnet 1996, XVIII–XIX.

²⁴ Le Breton 2016, 32.

²⁵ Baszkiewicz 1978, 468.

²⁶ Rionnet 1996, XV.

²⁷ Rionnet 1996, 53.

²⁸ Rionnet 1996, XVI.

²⁹ *Report from the Select Committee on British Museum* 1836, 590–591.

³⁰ MNW, the 'Zbiory Ikonograficzne i Fotograficzne' collection, Manuscript 1224/1 MNW.

³¹ Ryszkiewicz 1993, 71–73.



Fig. 1. Bust of Paris, Old Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.

became a mediator between *Komisja Rządowa Wyznań Religijnych i Oświecenia Publicznego* (the Government Commission for Religious Denominations and Public Enlightenment) and the Louvre. The main task of Letronne was to supervise the purchase, and transport to Warsaw, of previously selected plaster casts. In order to settle accounts with Jacquet, Letronne was given the entire sum owed to the artist (7,928 zloty and 5 groszy), but the 'enterprising' lithographer paid the plaster maker only half of the agreed-upon sum, appropriating the rest of the money. After returning to Warsaw, Letronne declared his studio bankrupt and the government commission never received the appropriated money back, despite fighting the matter in court for 15 years.³² Unfortunately, the current state of research makes it impossible to determine why it was Letronne who was selected as mediator in these purchases.

In all probability, only seven plaster copies of ancient sculptures marked with the stamp used by Jacquet survived to the present. Four of these – the *Bust of Paris* (Fig. 1), *Bust of the goddess Roma*, the *San Ildefonso Group* (Fig. 2) and *Hermes fastening his sandal* – are currently at the Old Orangery of the Royal Łazienki Museum in Warsaw, while *Faunus with a goat kid* is presented at the Museum of the University of Warsaw and the *Bust of Asclepius* at the Warsaw University of Technology. Only



Fig. 2. San Ildefonso Group, Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.

one object, a cast of a free-standing sculpture depicting Demeter (mistakenly identified as Vestal Virgin)³³ (Fig. 3) is displayed at the Column Hall of the University of Warsaw – the place which has functioned as an exhibition hall since the beginning of the existence of the Plaster Cast Gallery. Comparison of data from documents with the surviving plaster copies allows to conclude that the characteristic stamp (Fig. 4) on the pedestals of Warsaw's plasters is a mark identifying copies made by the royal artists at the Louvre during the first half of the 19th century. The design of the stamp used by Jacquet to mark his copies is not accidental. Signatures used during this period are round with a diameter measuring ca. 2.5 cm, with the entire circumference marked by slight granulation. In the centre of the marking, there is a sign of the *Musée Royal* which confirms the institution where the cast was made. What is more, the sign also indicates the time of its creation – the name *Musée Royal* was used

³² Bieliński 1907, 598–599.

³³ Atalay 1989, 94–96.



Fig. 3. Demeter, Column Hall, Faculty of History of the University of Warsaw, photo by M. Dunajko.

during the reign of Louis XVIII (1814–1824). Such dating of the plaster is also confirmed by iconography or the three lilies (two above and one below), which explicitly refer to the coat of arms of the Bourbon dynasty from which the Paris museum's founder descended.³⁴ Interestingly, François-Henry Jacquet's stamp did not appear on all of Warsaw's plaster casts marked with the letter B, i.e. those purchased in Paris in 1820 and 1830 according to the surviving inventories from the Plaster Cast Gallery of the University of Warsaw. At the current state of knowledge, it is very difficult to determine why some of the plasters imported from France at the beginning of the 19th century do not have the *Musée Royal* marking. This might be associated with the fact that Jacquet made copies of both the pieces belonging to the museum's collection as well as sculptures from his own personal col-



Fig. 4. Musée Royal stamp, photo by M. Dunajko.

lection. The royal artist also used the museum's forms to make copies which contributed to his sizable profits, but this eventually led to his dismissal from the position in 1848.³⁵ It may, therefore, be assumed that only casts made from originals belonging to the Louvre for official orders bore the aforementioned markings. Is it possible that some of the items from the Warsaw collection were made and purchased under less official circumstances? Additionally, it is feasible that only selected copies were designated this way because the obligation to mark them with the above-mentioned stamps was not implemented for another twenty years.

The University of Warsaw and thus all of its Faculties, including that of Fine Arts, was shut down as a part of the repressions resulting from the November Uprising of 1831. Despite the initial plans to move all university property to Russia, the collection of plaster casts remained in Warsaw.³⁶ In 1844, the old campus became home to the School of Fine Arts which inherited the collection of plaster cast copies.³⁷ In 1862, pieces not directly used during lectures were entrusted to the newly-established Museum of Fine Arts in Warsaw for safekeeping. The list of transferred items was not limited to plaster casts of ancient sculptures but also included, among others, busts made on the order of Stanislaus Augustus, a model of a Copernicus monument designed by Thorvaldsen, and reliefs by Maliński.³⁸ Only a year after the museum's

³⁴ Jankowiak-Konik *et al.* 2011, 4.

³⁵ Rionnet 1996, 53.

³⁶ Skowronek 1981, 225.

³⁷ Szwarc 2016, 393–397.

³⁸ Lorentz 1962, 17.



Fig. 5. Second tablet of the western Parthenon frieze, Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.

establishment, thanks to the initiative of its honorary director,³⁹ Justynian Karnicki, other stamp-bearing plaster casts – copies made in a private Parisian workshop run by Alexandre Desachy⁴⁰ – were brought to Warsaw. Probably only three casts of Parthenon frieze tablets survived to the current times (Fig. 5). These are currently stored at the Royal Łazienki Museum. According to the existing documents, fragments of the frieze were purchased with other reliefs of Pheidias and a number of other plaster copies of ancient and religious works of art (48 pieces in total).⁴¹ Each surviving work is marked with a 3.0 by 2.5 centimetre oval stamp used by the French caster to mark his works (Fig. 6). At first glance, the iconography placed in the centre of the designation – a coat of arms used by the British government – is both surprising and confusing. It is a shield divided into four fields with a crown at the top. The first and fourth field contain three lions (the coat of arms of England), the next field contains a rearing lion (the coat of arms of Scotland) and the third depicts a harp (the coat of arms of Ireland). The shield is encircled by a ribbon with the words *Honi soit qui mal y pense* (from French: ‘Shame to the person

who sees this as something indecent’) – the motto of the Order of the Garter, Britain’s highest honour. The coat of arms is held up by the English lion and the Scottish unicorn wearing a crown and a chain. Below the crest is the English royal motto: *Dieu et mon Droit* (French: ‘God and my right’).⁴² The presence of the English heraldic symbols in Desachy’s stamps should not be surprising. In 1856, the French *formatore* patented in England a type of fibrous plaster used to cast ornaments and architectural elements. This patent resulted in the establishment of a renowned casting studio⁴³ in the English capital and information about this fact was also included within the stamp, above the coat of arms. Numerous originals of works that were used as models to make moulds in his workshop can be found in English museums today. In all likelihood, Alexandre Desachy had subsidiary studios in various cities, as reflected by the names of cities surrounding the stamp’s iconographic symbols.

It may be assumed that in the same period that the copies of the Parthenon frieze were purchased, the University’s collection was also augmented with plaster casts signed by the Italian caster, Leopoldo Malpieri.⁴⁴

³⁹ In 1875, due to the lack of space, the Museum of Fine Arts returned the entire collection to the University where it remained until the start of World War II. It should be noted that this was merely a formality; the casts allotted to the museum remained *de facto* where they were, i.e. in the Column Hall, since the new institution did not possess an appropriate number of rooms to house so many objects; see Korotaj, Mikocki 1989, 16; Kowalski 2008, 23.

⁴⁰ After the dismissal of Jacquet from the position of the royal *formatore*, Alexandre Desachy proposed himself for the position

of Louvre’s caster, wanting to take over the monopoly on the museum’s moulds; the position, however, was given to Pierre-Laurent Micheli – the son of Étienne Micheli; see Rionnet 1996, 54–55.

⁴¹ Archives of the National Museum in Warsaw, file no. 4.

⁴² Boutell 1914, 259–273.

⁴³ Millar 1899, 343–380.

⁴⁴ These items were included in the collection between 1862 and 1884; see University of Warsaw Library, Manuscript Department, manuscript inv. no. 333.



Fig. 6. Alexander Desachy studio stamp, photo by Ł. Kamiński.

Rome's Malpieri family was part of a well-known group of Italian *formatori* (casters) operating in the second half of the 19th century.⁴⁵ Giovanni, Giuseppe and Leopoldo Malpieri were listed as creators of plaster casts in the 1843 *Il Mercurio di Roma* – a list of addresses and information devoted to scientists, writers, traders, and people connected with art.⁴⁶ The document states that Leopoldo Malpieri held the position of *formatore* at the aforementioned French Academy in Rome, Giovanni worked at the Vatican Museums, while Giuseppe's atelier was at 54 via del Corso. In 1864, the author of *Roma Antica e Roma Moderna ovvero nuovissimo itinerario storico-popolare-economico*⁴⁷ mentions Alessandro and Mauro Malpieri from 51 via del Corso and, once more, Leopoldo from 54 via del Corso. This information is confirmed in *Italy: handbook for travellers* published in 1875.⁴⁸ Another member of this illustrious family was Vincenzo, listed in the will of Antonio Canova as his *formatore*.⁴⁹ The aforementioned Alessandro worked for Pope Pius IX and was responsible, among others, for the casting of Trajan's Column.⁵⁰ The works attributed to this famous family were well-known and appreciated also beyond the boundaries of the Old Continent, a fact that is reflected in references made in American art catalogues

⁴⁵ Malone 2016, 9.

⁴⁶ *Il Mercurio di Roma* 1843, 321.

⁴⁷ *Roma Antica e Roma Moderna ovvero nuovissimo itinerario storico-popolare-economico* 1864, 280.

⁴⁸ Baedeker 1875, 109.

⁴⁹ Honour 1972, 221.

⁵⁰ Bucolo 2019, 451–470.

⁵¹ Brigham 1874; *Tentative list of objects desirable for a collection of cast, sculptural and architectural, intended to illustrate the history of plastic art* 1891.

⁵² "May 8th [1849] I was successful in finding my old formatore Malpieri for whom I have now waited more than a week.



Fig. 7. Leopoldo Malpieri studio stamp, photo by Ł. Kamiński.

dealing with plaster casts.⁵¹ *Formatore* Malpieri was likewise mentioned by the prominent British-American writer, critic and literary theorist, Henry James. It is, however, unclear which member of the family is being mentioned in his writings.⁵²

The Warsaw collection is connected with the aforementioned Leopoldo Malpieri. This artist's casts of sculptures, mainly from the Vatican Museums, Capitoline Museums, Villa Albani, Borghese and Ludovisi⁵³ were signed with a characteristic rectangular 6.0 by 1.5 cm stamp with a floral motif in its lower corners (Fig. 7). In the centre of the mark is the inscription *Leopoldo Malpieri Formatore Roma*, which, in contrast to the markings from Paris, provides information not only about the place and approximate time of creation but also the name of the caster. Two casts of ancient works made by Leopoldo Malpieri survived to the present: the statues of Demosthenes (Fig. 8) and Sophocles, both of which are currently kept at the Old Orangery of the Royal Łazienki Museum in Warsaw. Unfortunately, the collected archival material does not allow to precisely determine the date when these copies were brought to Warsaw or whether they were the only casts ordered from the Roman atelier. No documents concerning purchases made from the workshop of Leopoldo Malpieri were available either. The only certainty is that contacts with the Roman studios were maintained for quite a while, as confirmed by a 1929 catalogue preserved in the archives of the National Museum in Warsaw, sent there by the heirs of the Leopoldo Malpieri studio, stating

I found him in bed in a room without windows and containing three beds – hot, close, stifled enough, with his head bandaged and in a fever. To my surprise however, he offered to come tomorrow and cast my figure for me. Glad enough was I to find him, for the figure has now been finished more than a week, cracking and shrinking"; James 1903, 158–159.

⁵³ Information about the casts made in the studio established by Leopoldo Malpieri can be found in a list of plaster casts, *Catalogo dei gessi di proprietà di Cesare Malpieri di Leopoldo Malpieri formatore in gesso* from 1893; see Victoria and Albert Museum Archives, RP/1870/9549, vol. MA/4/7, 145.



Fig. 8. Demosthenes, Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.

that “Virgilio Gherardi⁵⁴ fu Michele successore alle Dite Michele Gerardi e Leopoldo Malpieri”.⁵⁵

It might seem that the second half of the 19th century and the tense political situation were not conducive to the growth of the collection, however, the loss of autonomy by the Kingdom of Poland did not lead to the fall of the idea of the Gallery and did not cause a reduction of its holdings. Quite the contrary, along with the establish-

ment of the Imperial University of Warsaw the collection of plaster casts acquired several dozen new sculptures.⁵⁶ Nearly twenty years after the purchase of plasters made by Desachy and Malpieri, the Gallery of Plaster Casts gained additional copies signed by an atelier associated with the Louvre. According to the inventory kept by Zygmunt Batowski,⁵⁷ the collection was expanded in 1879 by at least two plaster casts made in Paris: metopes from Temple C at Selinus (Fig. 9). Both moulages were signed with an oval-shaped stamp with the inscription *MUSEES NATIONAUX MOULAGE* (Fig. 10). The stamp was used by the workshop at the turn of the 19th and 20th centuries. Unfortunately, the documents do not allow to conclude who exactly made the mentioned plaster casts.⁵⁸

It can be assumed that other sculptures were purchased from a private studio during the same period. This time it was the atelier of brothers Claudio and Aurelio Micheli in Berlin which, next to the state-run Gipsformerei, was considered the most important German institution dealing with plaster casts.

In Germany – similarly to other countries of the Old Continent – fondness for classic culture, particularly strong during the enlightenment era, caused a rapid rise in demand for antique works of art as well as increased interest in the purchase of copies of ancient sculptures. Until that time, casts were mainly imported from Italy but this entailed high costs. In 1819, this situation led to the establishment of the royal studio of plaster figures, the *Königlich Preussische Gipsgussanstalt*, which in 1830 was incorporated into the Royal Museums – a precursor of the present-day Staatliche Museen zu Berlin.⁵⁹ In establishing its Gipsformerei, the Kingdom of Prussia hoped that the production of plaster casts of famous sculptures would provide it with both prestige and a new source of profits. The new institution was to be managed by a director experienced in sculpting techniques as well as in casting. The position was given to Christian Daniel Rauch, one of the most important Prussian sculptors of the end of the 18th and beginning of the 19th century.⁶⁰ The growth of the Gipsformerei’s collections went hand in hand with the development of Berlin’s museums, a fact that was documented in the continually updated and expanded catalogue. The 19th century was especially productive; during

⁵⁴ The Gherardi family, besides the Malpieri family, was one of the most significant families in relation to Italian casting. Their two workshops were combined in 1905.

⁵⁵ Based on these documents, it is not possible to conclude whether the University of Warsaw or the National Museum purchased any of the items from the list that was sent over; Archives of the National Museum in Warsaw, file no. 10b.

⁵⁶ University Library in Warsaw, Manuscript Department, manuscript inv. no. 332.

⁵⁷ University Library in Warsaw, Manuscript Department, manuscript inv. no. 331.

⁵⁸ During this period, the title of the chief *formatore* of the Louvre belonged to Louis Lubrat who held the office between 1860 and 1880. Unfortunately, it is not possible to verify if he was responsible for the metopes imported to Warsaw; see Rionnet 1996, 55.

⁵⁹ Schwan 2012, 113–116.

⁶⁰ Maierhofer 2000, 609–611; Fendt 2012, 70–71; Schelper 2013, 25.



Fig. 9. Metope from Temple C at Selinus, photo by the Royal Łazienki Museum.

this time, in cooperation with *Akademie der Künste* and Berlin's universities, and thanks to numerous research projects and expeditions of German archaeologists, the collection gained unique works of art. Furthermore, regular exchanges between museums and purchases from foreign workshops caused the Gipsformerei to acquire the reputation of one of the largest casting houses of Europe.⁶¹ The demand for copies of ancient works of art and the establishment of other collections also stimulated the emergence of private ateliers.

In Prussia, too, the popularity of collections of ancient works of art resulted in the establishment of private casting studios. Among the more prominent of those was the aforementioned workshop of brothers Claudio and Aurelio Micheli, established in 1824. This sculpting duo quickly took control over the German plaster market. The fact that the studio was represented by a branch office on one of the most representative streets of Berlin, Unter den Linden, testifies to its high importance. The Micheli brothers' sales catalogue included casts of reliefs

and sculptures from various eras and busts of contemporary and historic figures.⁶² Copies made at the workshop were designated with a stamp containing the inscription *Eigenth. D. Gebrüder Micheli Berlin*, with the seal pressed into the still-wet plaster (Fig. 11).

To meet the needs of the University of Warsaw's Gallery of Plaster Casts, seven tablets with Pergamon reliefs (Fig. 12), "four busts of famous physicists to adorn the auditorium – life-sized and on decorative plaster consoles",⁶³ and the bust of Hermes (from the statue of *Hermes and the Infant Dionysus*) were purchased from the atelier of the Micheli brothers. The first mention of the purchases from this private studio appears in an inventory started in 1884, but the author only lists the bust of Hermes⁶⁴ and five tablets with reliefs from the Pergamon Altar (the Zeus group, the Athena group, the Artemis group, the Demeter and Persephone group, and the Helios group). Interestingly, the margin of the document, next to the works from Pergamon, contains precise information about their purchase: "on the order of

⁶¹ Schelper 2013, 25–27.

⁶² Kammel 2001, 47–72.

⁶³ University Library in Warsaw, Manuscript Department, manuscript inv. no. 333.

⁶⁴ Information concerning the purchase of the copy of Hermes also appears in issue no. 313 (24 December 1881) of *Tygodnik Ilustrowany* (The Illustrated Weekly), 1–2. The author of the article does not mention any other copies; University Library in Warsaw, Manuscript Department, manuscript inv. no. 331.



Fig. 10. Stamp used by the Louvre Museum's atelier at the turn of the 19th and 20th centuries, photo by M. Dunajko.

authorities of 26 March 1894⁶⁵. The discussed casts show up again in a list from 1917, however, Zygmunt Batowski, the then director of the Gallery, mentions as many as seven reconstructed parts of the altar.⁶⁶ Unfortunately, it is not known when the two relief sculptures supplementing the collection were bought. It can be assumed that the varying dates in which the individual tablets were purchased may be associated with the presence or absence of designations of the workshops in which they were made. Five complete casts reconstructing the altar's decorations and one damaged object survived to the present. All copies are kept at the Royal Łazienki Museum.

When discussing plaster copies bought in Berlin, it is worth remembering that the professors from Warsaw did not limit themselves only to the atelier of the Micheli brothers. Proof of contacts between the University of Warsaw and the aforementioned famous Gipsformerei consists of catalogues with proffered works specified in inventories,⁶⁷ as well as signatures found on two surviving casts: *Harmodius and Aristogeiton* (Fig. 13) and

a relief sculpture presenting *Nike adjusting her sandal* (Fig. 14). According to an inventory started in 1884, the pieces made their way to Warsaw in 1901 along with several other works (including, among others, Nike of Paionius, the funerary stele of the ancient warrior Aristion, a relief sculpture of a young Antinous, as well as a double herm of Herodotus and Thucydides).⁶⁸ Markings found on both copies are characteristic of the first few years of existence of the Gipsformerei (Fig. 15): the plate is made from brass foil, has a diameter of 2.5 cm and bears the crest of the Kingdom of Prussia in its centre – a Prussian eagle with a royal sceptre and an orb surrounded by the inscription *Gipsformerei der Königl. Museen Berlin*. A stamp with this design was used between 1819 and 1918.⁶⁹

Just like the Parisian designations, the signature of the Berlin studio also underwent changes. The iconography on Gipsformerei's stamp reflected the country's political situation, as confirmed by the appearance of the crest – the eagle in its centre changed from the eagle of the Kingdom of Prussia to that of the Free State of Prussia, then to that of the Weimar Republic, and finally to the one used by the Third Reich.⁷⁰ Since 1962, plasters have been marked using the official brass-foil stamp of the Prussian Cultural Heritage Foundation designed by the sculptor Karl Roth.⁷¹ Its markings and iconography refer directly to the eagle of the Free State of Prussia.⁷²

Unfortunately, the subsequent years and the aggravating situation in Poland unfavourably impacted the collection's later fate. War-related activities caused a cessation of contacts with foreign ateliers and a reduction of the impressive collection of plasters. Faced with the German army approaching Warsaw and the need to evacuate the University to Rostov-on-Don, the then Rector, Professor Siergiej I. Wiechow, decided to move the University's property to Russia. As is known, during the hasty evacuation the items from laboratories and

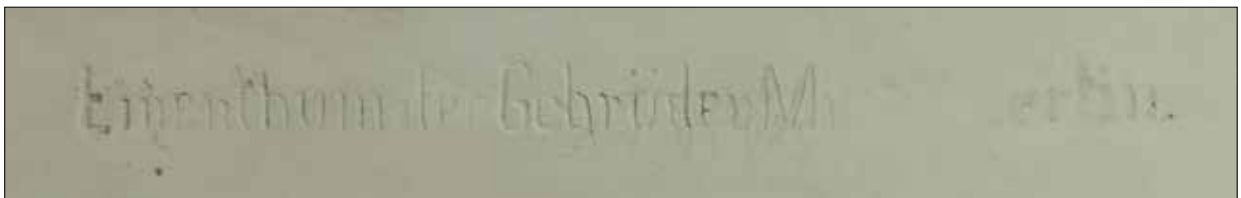


Fig. 11. Stamp used by the studio of the brothers Claudio and Aurelio Micheli, photo by Ł. Kamiński.

⁶⁵ University Library in Warsaw, Manuscript Department, manuscript inv. no. 332.

⁶⁶ University Library in Warsaw, Manuscript Department, manuscript inv. no. 333.

⁶⁷ University Library in Warsaw, Manuscript Department, manuscript inv. no. 332.

⁶⁸ University Library in Warsaw, Manuscript Department, manuscript inv. no. 332.

⁶⁹ Schwan 2012, 114–115.

⁷⁰ Schwan 2012, 114–116.

⁷¹ Fuhr 2011, 24.

⁷² Schwan 2012, 113–116.



Fig. 12. Fragment of the Pergamon Altar frieze (Enyo, Ptolemaios, Nyx, Erinyes), Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.



Fig. 13. Tyrannicides Group, Orangery at the Royal Łazienki Museum, photo by Ł. Kamiński.

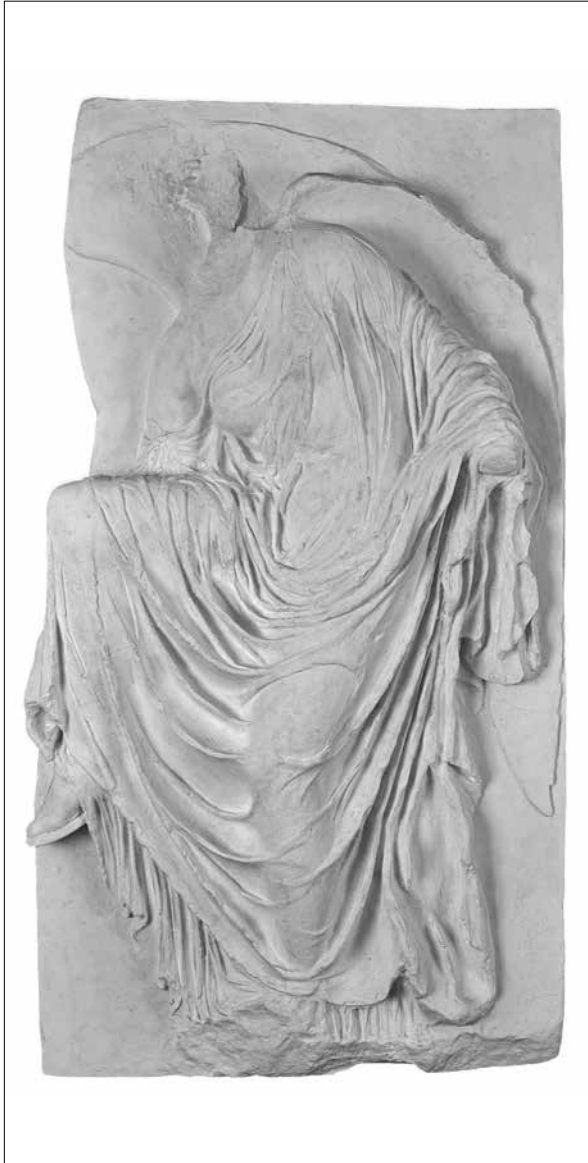


Fig. 14. Nike adjusting her sandal, Orangeria at the Royal Łazienki Museum, photo by M. Dunajko.



Fig. 15. Gipsformerei stamp used between 1819 and 1918, photo by Ł. Kamiński.

scientific workshops, a portion of the library resources, university documents, and the private belongings of professors were moved.⁷³ Research to date has not provided an unequivocal answer to whether the collection of plaster casts stayed untouched. It is possible that a few objects were taken to Russia, never to return.⁷⁴ After World War I, 655 plaster casts remained in the collection.⁷⁵ The next war resulted in the complete scattering of the Gallery. At the beginning of 1940, the copies destroyed by the occupier and their fragments were transported as a university deposit to the National Museum, where they stayed until the war was over. In 1946, the collection was moved to museum warehouses in Wilanów⁷⁶ and then distributed to various institutions. Unfortunately, the casts have never returned to the University of Warsaw.

⁷³ After the end of the Polish-Soviet war, in accordance with a treaty signed in Riga, the Soviet authorities obligated themselves to return the confiscated property. Unfortunately, it was not possible to reclaim all of the stolen works; see Schiller 2010, 197–208.

⁷⁴ In a publication devoted to sculptures inherited from Stanislaus August, Zygmunt Batowski, the Curator of the Gallery of Plaster Casts from 1917 to 1919, reminisces: “(...) King Stanislaus Augustus’ plaster glyptotheque survived in this place owing its fate both to being appraised as not valuable as well as being of a material that is thankless in moving – having the properties of antiques – heavy and fragile. It was diminished and strained only by the trials of time. Having established at the beginning of the 19th century a core of the gallery of plaster casts of the University of Warsaw, it remains as one of the

greater tokens for the memory of Stanislaus Augustus (...)”. It is worth pointing out that Batowski mentions only pieces from the royal collection. The inventory that he kept includes a life-sized plaster bust of Emperor Alexander I in Roman garb which came from Rostov-on-Don in 1925. The date of receipt of this cast suggests that it was reclaimed as part of the Riga Treaty; see Z. Batowski, *Rzeźby artystów Stanisława Augusta w zbiorze odlewów*, Warszawa 1922, 3; *Uniwersytet Warszawski. Inwentarz. Zakład Historii Sztuki 1917*, University Library in Warsaw, Manuscript Division, manuscript inv. no. 331.

⁷⁵ University Library in Warsaw, Manuscript Division, manuscript inv. no. 333.

⁷⁶ Bernhard 1947, 289–290; Korotaj, Mikocki 1989, 16; Kowalski 2008, 31.



Fig. 16. Gipsformerei stamp since 1961, photo by Ł. Kamiński.

The idea of recreating a coherent collection was revived in the 1960s. The curator of the Royal Łazienki Museum at the time, Prof. Marek Kwiatkowski, made efforts to obtain permission to transport most of the surviving plaster casts to the Old Orangery. His intention was to open a new sculpture gallery. The destroyed casts were subjected to restoration works carried out by sculptors: Jan Cykowski, Józef Gazy and Stanisław Lipski. After restoration, selected copies were placed in the renovated gallery on the ground floor.⁷⁷ Moreover, the Royal Łazienki Museum continues the practice of importing plasters from the Gipsformerei. In 2015, the institution got three casts from Berlin (Apollo Belvedere, Meleager, and the Laocoön Group) signed with stamps used since 1961 (Fig. 16).⁷⁸ The purchase of copies which were once part of Warsaw's collection⁷⁹ was associated with the 2012–2015 renovation of the Old Orangery. Interestingly, traces of 18th-century paintings⁸⁰ made according to the design of Johann Christian Kammsetzer

and ordered by Stanislaus Augustus⁸¹ were discovered under the wall plasters during conservation work at the sculpture gallery.

Despite its short history, the royal-university collection has grown significantly: from five hundred and forty-two items purchased by Stanislaus Augustus to over seven hundred and fifty works gathered at the University. For years, agents of Stanislaus Augustus, art professors and museum directors tried to establish a cooperation with numerous studios throughout Europe which made copies of Antiquity's most outstanding works of art.

In analysing this Warsaw collection, one must bear in mind that the place where a particular work that served as a model for the casting form was kept does not have to match the place where the copy was made. Quite the contrary: casts of the same sculpture could be ordered in different European cities since several moulds could be made from one original. It was very rare for artists to gain exclusive rights to cast particular items. Throughout the entire history of the considered collection, as well as in the relevant documents, there is not a single mention of purchasing casts from the British Museum or other English institutions. However, the collection includes plaster copies of works from English museums.⁸² Precise information regarding the origins and creation of a given copy can be provided by the surviving documents, iconographic materials and, above all, each studio's signature. These make it possible not only to determine the provenance and exact time of manufacture but, in many cases, to establish the name of the creator as well. What is more, the designations also act as a certificate of quality for a given copy, an attest of its authenticity, a maker's mark, and protect against forgery.⁸³ In the case of the royal-university collection, the stamps along with the surviving documentation can, to a significant degree, facilitate attempts at its reconstruction.

The aforementioned studios are, of course, not the only workshops whose services were used by the cura-

⁷⁷ Kwiatkowski 2007, 26–37.

⁷⁸ Schwan 2012, 115–116.

⁷⁹ Based on an inventory written by Zygmunt Batowski and iconography, it can be concluded that Meleager modelled on the statue from the Staatliche Museen zu Berlin and purchased in 2015 by the Royal Łazienki Museum in Warsaw is not the same as the cast which was part of the collection prior to 1939. The non-surviving copy was made on the basis of the statue from the Vatican Museums. The 2015 purchase resulted from a possibility of obtaining only this version of the sculpture; see Spinola 1996, 137; Fendt 2012, 388–399.

⁸⁰ Zychowicz 2015, 6.

⁸¹ During the first years of its existence, the Gallery was located at the Castle and later moved to the Royal Łazienki. The palace-

garden complex established by the king and reflecting the essence of his love of Antiquity was the perfect place to create a plaster cast gallery of ancient works of art. During the reign of Stanislaus Augustus, the garden decorated with sculptures relating to Antiquity was to be a prelude to another planned garden with statues from the exhibition in the Orangery. The planned arrangement of the unaccomplished gallery can be found in the designs of wall decorations carried out as an Italian landscape and in the layout of statues made by Johann Christian Kamsetzer; see Mikocka-Rachubowa 1989, 7; Kowalski 2008, 15, Kwiatkowska 2013, 311–325.

⁸² Małcużyńska 1974, 5.

⁸³ Schwan 2012, 113–115.

tors of the Gallery of Plaster Casts. They are, however, a model example of the broad cooperation with famous ateliers and European casters. The surviving inventories and documents from the 19th and 20th centuries show that the university collection also contained plasters that bore stamps of a studio from Nuremberg or products of the *Pamiątka Polska* (Polish Souvenir) company from Warsaw. Numerous other European ateliers where pieces for the collection were purchased did not have their own characteristic markings. The collection of plaster casts,

therefore, requires further study and expanded exploration encompassing different European studios.

Both the dynamic growth of the collection and the selection of individual objects are also interesting. The gathering of a collection that constituted a review of the most important Greek and Roman works most probably stemmed from a vital need of the University of Warsaw's professors and students. Therefore, the choice of ateliers was not necessarily dictated by the prestige or respect they enjoyed, but rather by the selection of copies which they had on offer.

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VIETNAMESE BLUE AND WHITE WARE. DECORATIVE MOTIFS AND SYMBOLS

ABSTRACT

Vietnamese blue and white ware has recently become an object of scientific scholarly interest. In the beginning, this kind of pottery was overshadowed by Chinese products, but later on it experienced a boom in the 15th and 16th centuries. In this paper, I analyse the development of ceramics on the territory of modern Vietnam, including its shape, decorative motifs and ornament symbolism while focusing on the unique national character of this category of products.

Despite strong Chinese influences which are clearly visible in the technological borrowings and symbolism of depictions, Vietnamese pottery shows a skilful mixture of tradition and foreign inspirations. Unlike their Chinese counterparts, Vietnamese painting styles clearly give the Vietnamese pottery of this period a unique, individual form. The blue and white vessels are no longer copies or imitations but local products of high artistic value.

Keywords: Vietnam, blue and white ceramics, Southeast Asian ceramics, symbols, decorative motifs, Bat Trang, Ly dynasty, Tran dynasty

Introduction

Studies on Vietnamese ceramics constitute a relatively young strand of research. Eclipsed by the popularity of Chinese ware, Vietnamese ceramics became a subject in western scholarship in the mid-20th century. The successive discoveries of shipwrecks in Southeast Asian seas revealed unusual finds of blue and white ceramics dated to the heyday of Vietnamese workshops of the 15th century AD. These products are enrapturing in both their technological and artistic aspects. Despite the strong Chinese impact on Vietnamese culture between the 1st and 10th century AD, blue and white ware kept its local individuality that manifested itself in numerous dish shapes and decorative motifs. In his book from 1956, John A. Pope states that Vietnamese blue and white pottery cannot be compared with Chinese products because they are completely different.¹ It is clear that Vietnamese workshops drew on Chinese experiences and produced vessels deceptively resembling the Chinese blue and white. However, they also drew from local traditions, forming what can be clearly seen as a distinct group of Vietnamese

ceramics. The beginnings of the Vietnamese ceramic industry can be traced to the Neolithic period. The oldest known pottery came from the Da But culture (ca. 4000–2700 BC). At that time, a simple mixture of clay and sand with organic inclusions was used. The vessels had simple shapes with basic decoration. Over time, the production technology underwent improvements such as more careful clay purification and a higher temperature of firing in closed kilns.² In the Iron Age, the production technique reached a very high level. The Dong Son culture, the most representative for this period, produced a lot of new pot shapes with a wide range of functions. A good example of the new types of production forms are zoomorphic vessels. The same period also saw the advent of what is probably the oldest glazed pottery in Vietnam.³

Under Chinese occupation (1st to 10th century AD), Vietnamese production improved due to the technological influence of Chinese workshops. This is especially visible in raw material processing and the introduction of pure, almost white clay.⁴ The new philosophical systems and religions that arrived from China, such as Confucianism and Taoism also influenced Vietnamese

¹ After Nguyen Long 1999, 111.

² May 2000, 18.

³ May 2000, 32.

⁴ Rooney 2013, 23.

culture, including pottery and its decoration. This process inspired local potters who began to create new forms of vessels. Foreign elements were mixed with the native tradition.⁵

Vietnam regained its independence during the 10th century AD. The political change in the region coincided with very high quality of pottery production. That period may be considered the golden age of the local ceramic production.⁶ Vietnamese ware reflects the great creativity of artisans. The potters started experimenting with different shapes of vessels, adding new elements that were characteristic of the local tradition and the social needs during the Ly and Tran dynasties.⁷

Vietnamese Blue and White Ware

The first examples of Vietnamese blue and white ware are dated to the second half of the 14th century AD.⁸ According to James R. Brow, the earliest vessel was dated to 1450 AD and came from a workshop in the Hai Duong province in northern Vietnam⁹ (Fig. 1). Most information about this kind of pottery comes from underwater explorations of shipwrecks found along the coasts of Thailand, Indonesia, the Philippines and Vietnam.¹⁰ Interestingly, both Vietnamese and Chinese vessels were exported to the same markets. Kerry Long Nguyen suggested that this could be proof of the high quality of Vietnamese production and its unique character.¹¹

Blue and white pottery became especially popular during the 15th and 16th centuries AD. It was painted under glaze and fired in high temperatures. The blue pigment was produced using cobalt, imported probably from the Middle East.¹² Vietnamese craftsmen never acquired the skill of porcelain production despite rich sources of kaolin near the city of Hanoi.¹³ They produced only occlusive stoneware vessels in palettes of colours ranging from light beige to almost white, with thin vessel walls.¹⁴ Under glaze, the cobalt pigment showed different shades of blue which gave the products their unique character.¹⁵ Vessels of diverse shapes were manufactured, such as plates, large and small bowls, cups, pots, vases, kendi, jugs, and bottles of various sizes and purposes (Fig. 2), from purely decorative forms to simple vessels intended for daily use (table and storage ware). Interestingly, the

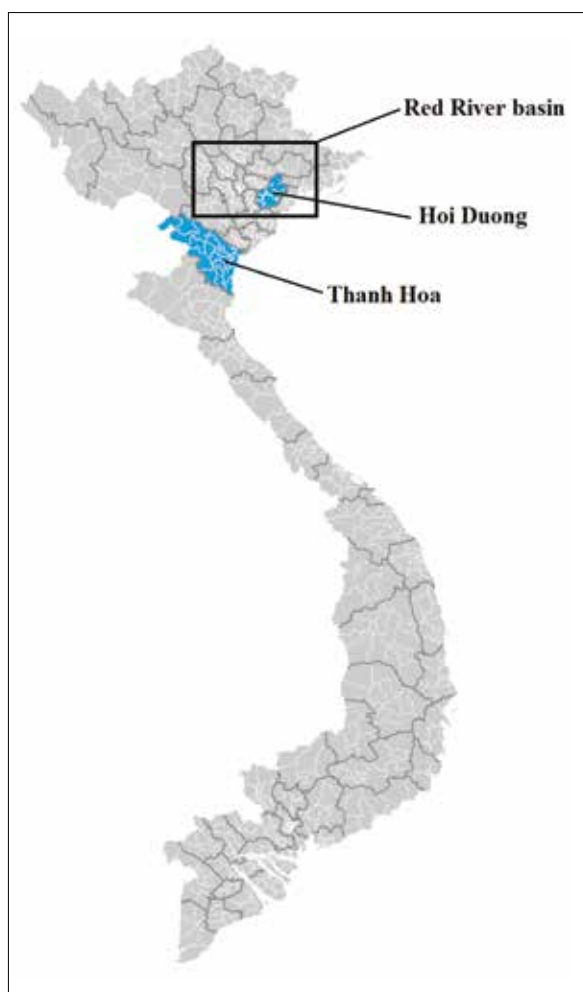


Fig. 1. Thanh Hoa and Hoi Duong provinces (drawing by K. Czapska).

workshops also produced zoomorphic and even rare anthropomorphic vessels¹⁶ (Fig. 3).

Types of Decoration

The decoration of Vietnamese blue and white pottery is characterised by an unusual richness of motifs. A new decorative direction is clearly visible, inspired by Chinese patterns but filtered through indigenous culture and religion. Motifs related to philosophical systems (Confucianism, Taoism and Buddhism) were very pop-

⁵ Stevenson, Guy 1997, 149.

⁶ Wasilewska-Dobkowska 2001, 49.

⁷ Rooney 2013, 23.

⁸ Brown 1997, 16.

⁹ Brow, Anh 2004, 90.

¹⁰ Osman 2003, 10–11; May 2000, 145.

¹¹ Nguyen Long 1999, 114.

¹² Guy 1989, 51.

¹³ Guy 2000, XVI.

¹⁴ Rooney 2013, 23.

¹⁵ Wasilewska 2009, 28.

¹⁶ May 2000, 168.

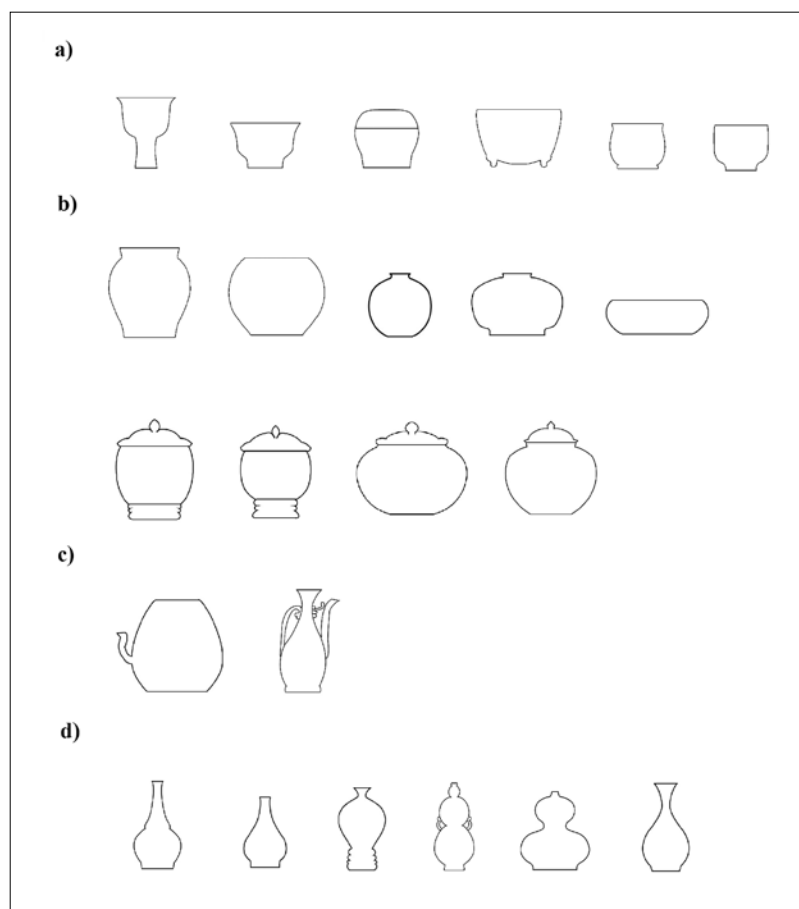


Fig. 2. Shapes of Vietnamese blue and white pottery (schematic examples without scale): a) bowls and cups; b) jars; c) pouring vessels; d) bottles. Drawing by K. Czapka, based on Ysaguirre, Silverman, Paffrath 2000.

ular. It should be pointed out that the decorative motifs on pottery have mostly symbolic meaning. The most interesting attributes of Far Eastern traditions are depictions of many different floristic and animal patterns or landscape elements. When interacting with this pottery, one not only admires the art of the craftsman, but also reads the message and identifies the motifs characteristic for a given workshop.¹⁷

The decorative motifs of blue and white ware can be divided into floral, faunal, and scenery. Local workshops drew inspiration from surrounding nature. Amongst the floristic depictions, the most popular are many kinds of flowers, such as peony, chrysanthemum and lotus, as well as stylised lotus leaves¹⁸ (Fig. 4). These flowers are characterised by delicate quality, lightness and ease. The lotus is one of the most popular plants in both Vietnam and China. Its symbolism can probably be associated with

Buddhism. The pure lotus flower emerging from water, scented and simple in shape,¹⁹ referred to the teachings of Buddha – his pureness, goodness and glare.²⁰ Another popular flower is peony. It is depicted in decorations with jagged leaves, coiled or in controlled disarray. The flower is a sign of richness and courtliness according to Chinese symbolism.²¹ The peony was adapted as a decorative motif of Vietnam from the mighty neighbour, but its meaning changed slightly: it symbolises happiness and success.²² Although these flowers have a clear connection to Buddhism, they were present in the natural landscape of Vietnam during the discussed period, which is confirmed by the sceneries depicted on vessels (Fig. 5). As can be seen in Figure 5, a crane is flying over a clearing covered by plenty of lotus and peony flowers. There is a duck nearby. This kind of scenery can symbolize the love of lovers.²³ Above, just beside the flowers mentioned earlier,

¹⁷ Nguyen Long 2004, 96–101.

¹⁸ Wasilewska-Dobkowska 2001, 50.

¹⁹ Eberhard 2007, 137–138.

²⁰ Adkinson 2009, 377; Kopalinski 2007, 202–204; Ronnberg, Martin 2010, 158.

²¹ Eberhard 2007, 195–196.

²² Wasilewska 2009, 27.

²³ Eberhard 2007, 101.

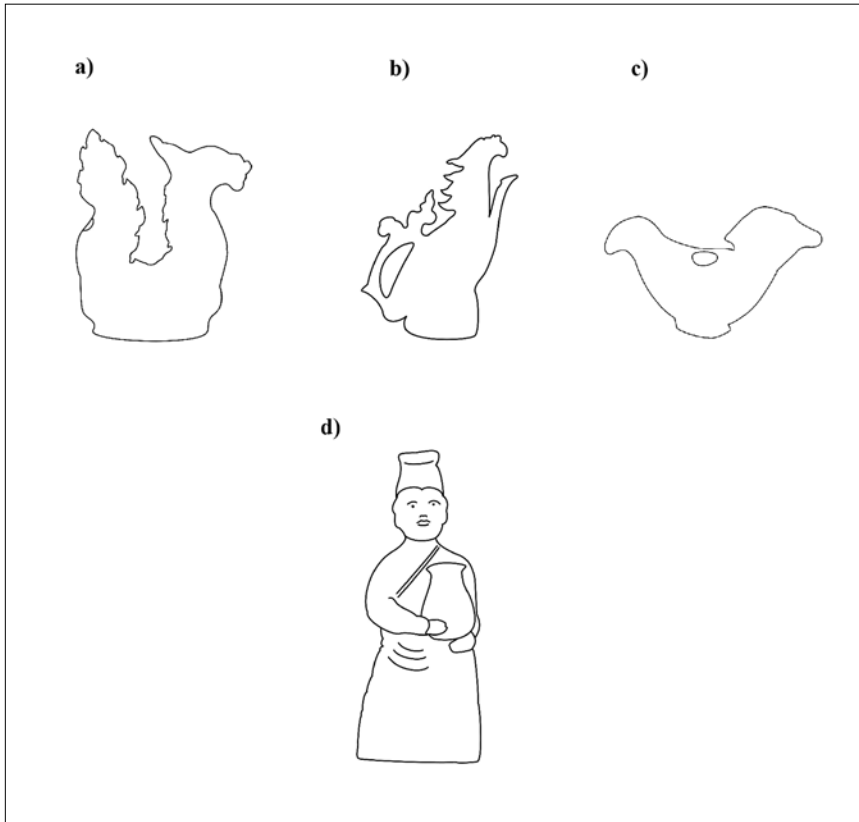


Fig. 3. Animal-shaped and figurative blue and white pottery (schematic examples without scale): a) dragon ewer; b) phoenix ewer; c) bird-shaped pouring vessel; d) male figurine. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000.

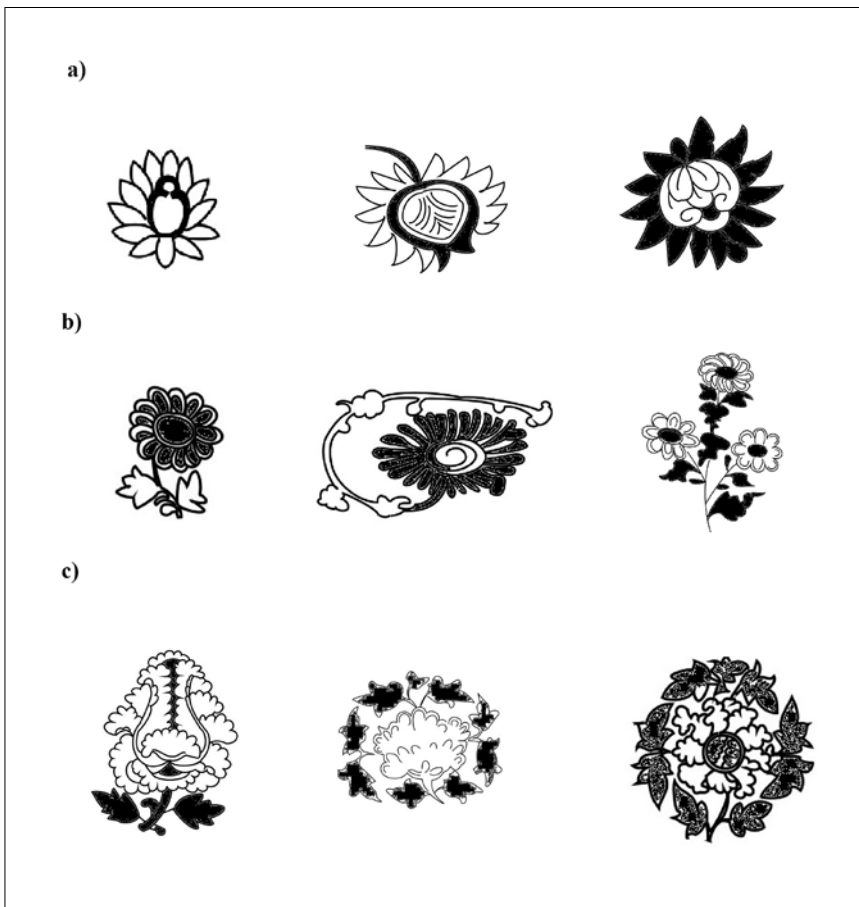


Fig. 4. Floral decorative motifs: a) lotus flowers; b) chrysanthemum flowers; c) peony flowers. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000.

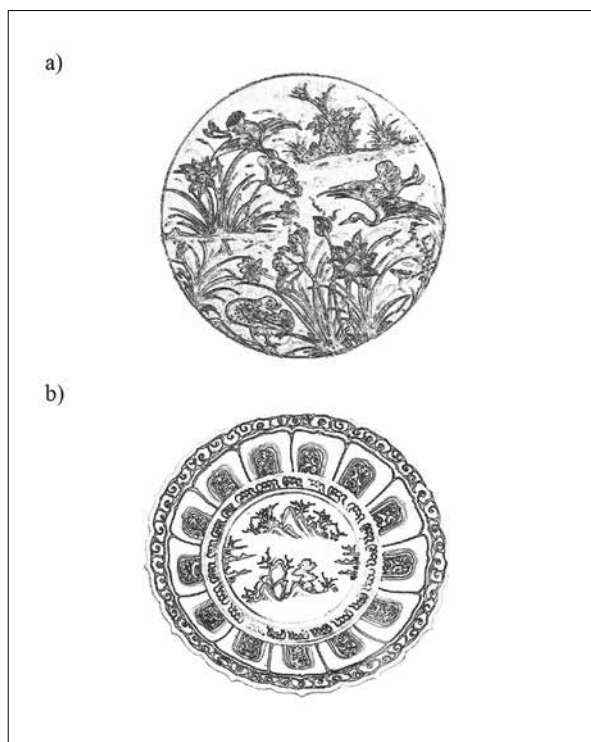


Fig. 5. Landscape decorative motifs. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000, XV (a); May 2000, 172 (b).

a chrysanthemum flower can be seen. This is a plant that exists in Vietnamese nature and has pure Far Eastern origin. Farmed in China, it was later adopted further to the east, in Japan, followed by Vietnam to the south and later on, Europe. As a symbol, it was associated with Japan and the imperial family. In Chinese culture, the chrysanthemum is associated with seasons. It is depicted on porcelain as a synonym for autumn, however it is mostly connected with longevity and affluent life.²⁴

Depictions of fauna are different. In Vietnamese decorative motifs, the images of mythological animals adopted from Chinese culture or naturally existing in the local environment are clearly depicted. Potters imitated the surrounding world by placing small birds or common wild ducks or geese among tree leaves on the vessels. The birds are usually presented in their natural sceneries. They can also be seen amongst lotus and peony flowers, perceived as symbols of richness and splendour.²⁵

A landscape itself is not a new motif in Far Eastern art. In the Chinese language, a landscape – *shanshui* (山水)

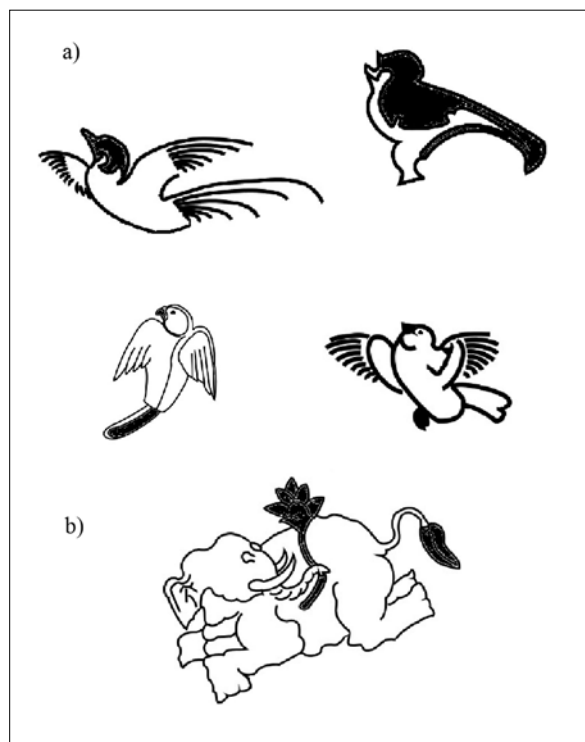


Fig. 6. Animal decorative motifs: a) birds; b) elephant. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000.

水) – is translated as mount and water. These two elements symbolise Space and all together refer to Taoist philosophy.²⁶ When depicted on pottery, landscape motifs consist of marine-mountainous sceneries but also more common, mundane motifs of fields and gardens.²⁷

There are also some motifs typical for blue and white pottery but unknown in Chinese art of this period. A good example is the peacock, a long-tailed bird considered as the symbol of the nation. In Chinese literature, this bird is described as The Bird of the Viets.²⁸ For the Vietnamese nation, it was also a symbol of their fight for independence and victory over Chinese domination.²⁹ In general, the symbol of a bird in Eastern beliefs is strongly associated with bringing happiness.³⁰ This is why people were pleased to be surrounded by these depictions: it was not only nice to the eye, but also acted as a talisman (Fig. 6).

Another little-known motif in 15th- and 16th-century AD China was the elephant (Fig. 6). In Vietnam, it became a popular theme under the rule of the early Ly dynasty.³¹ The elephant was depicted on underglaze paint-

²⁴ Hall 2007.

²⁵ Eberhard 2007, 217–218.

²⁶ Lurker 2011, 116.

²⁷ Nguyen Long 1999, 116–121.

²⁸ May 2000, 58.

²⁹ May 2000, 58–60.

³⁰ Kopalinski 2007, 343.

³¹ May 2000, 58.

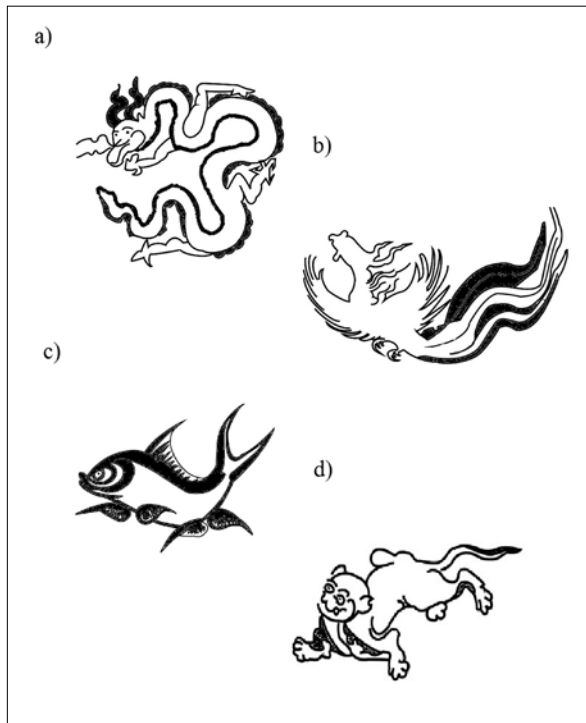


Fig. 7. Mythical animal decorative motifs: a) dragon; b) phoenix; c) fish; d) tiger. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000.

ings. Figurines of elephants were also created, including ceramic miniatures.³² This animal is strictly connected with Buddhism. It probably came to Vietnam from India through Thailand, a country that remained under the strong influence of Indian culture. As a decorative motif in blue and white pottery, it was a sacred animal symbolising strength and wisdom.³³

Besides animals living in the local environment, the decorative motifs also include some mythological creatures, such as the phoenix, dragon or tiger (Fig. 7). These are amongst the so-called Eight Mythic Animals, alongside the unicorn, turtle, fish, bat and crane.³⁴

The dragon is one of the most popular themes in Far Eastern culture. It probably appeared in Tonkin under Chinese rule, as one of the numerous influences absorbed from the culture of Vietnam's northern neighbour.³⁵ Even in its own symbolism, the dragon evokes royal authority, alluding to the Emperor, which would

confirm the Chinese roots of this motif.³⁶ An interesting fact is that in Vietnamese tradition, the word 'dragon' is present in the original name of the capital, Thang Long, which can be translated as 'the Town of the Dragon Flying Upwards'³⁷ or 'Ascendant Dragon'.³⁸ This name was created in the 11th century AD when the Ly dynasty (called The Late One) bestowed the status of capital on present-day Hanoi. The society of the Viets viewed the dragon as a symbol of power and protection and hence it became a very popular theme for tattoos placed on the chests of male warriors as an auspicious motif. On pottery, the dragon is depicted with a long body, dangerous jaws, sharp claws and two-horned head (Fig. 7).

Very similar types of vessels also bear depictions of the phoenix. This creature is identified with the homeland and national pride and evokes symbolic associations very similar to those of a peacock.³⁹ The phoenix is the second most popular mythological animal after the dragon represented on pottery.⁴⁰ Very importantly, the Asian phoenix has no connection with the European one. This symbol came from the Chinese bestiary of magic animals. It was imaged as a bird with wide wings, a long torso and very abundant feathering. It was associated with the delicacy and grace of women and thus became an attribute of femininity and also the Empress herself.

The tiger is also a very frequent decorative motif on vessels. Images of this animal are often surprising. In the eyes of the artists of that time, it was a massive, slightly grotesque creature with long, dangerous teeth. With this representation in mind, it is hard to compare the Tonkin tiger with the august and noble image of the wild cat (Fig. 7). The potters were probably trying to capture something that they had never seen or knew little about. The tiger appears very frequently in Vietnamese art, especially under Chinese rule. Despite its unusual portrayal, the tiger had an important function as a symbol of secular power and courage.⁴¹

Amongst the appearing motifs, there are also fishes and turtles. They first came from Chinese culture where fish (魚) *yu* is a homophone of (裕) *yu* – rich, abundant. The fish as decoration is used on plates or other tableware, where it serves as a symbol of abundance and prosperity.⁴² Turtles take the shape of small figurines which are symbols of longevity and wisdom in Vietnamese tradition.⁴³

³² Catalogue 1989.

³³ Ronnberg, Martin 2010, 264–267.

³⁴ Müllerová 2009, 13.

³⁵ Müllerová 2009, 15.

³⁶ Eberhard 2007, 234–235.

³⁷ Müllerová 2009, 15.

³⁸ Guy 2000, XVIII–XIX.

³⁹ Guy 2000, XVIII–XIX.

⁴⁰ Very interestingly, 'phoenix' is a European name. This is why it is not the same creature – only the phonetic sound, *feng* (鳳), is similar. The current Western use of the word stems from the lack of a better term for this magic bird.

⁴¹ Müllerová 2009, 21.

⁴² Müllerová 2009, 19.

⁴³ Kopalinski 2007, 514.

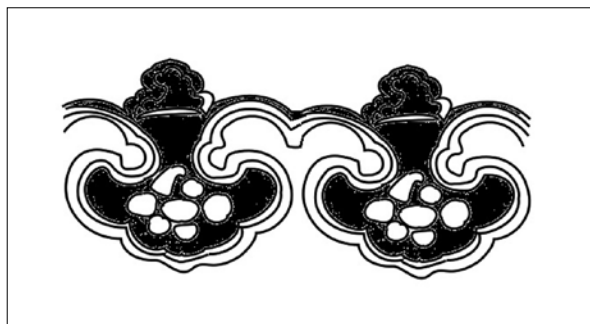


Fig. 8. *Ruyi* motif. Drawing by K. Czapska, based on Ysaguirre, Silverman, Paffrath 2000.

A very interesting pattern depicted on blue and white pottery at the time of the late Le dynasty is a motif of *ruyi* (Fig. 8). This symbol is associated with Chinese Buddhism. In Chinese, *Ruyi* (如意) means literally “as one wishes”. This phrase appears in the auspicious inscriptions from the Han dynasty in China.⁴⁴ In Vietnamese decorations, it was adopted from the northern neighbours. According to Jochen May, this symbol can be explained as fortune, as everything supposed to happen according to the will of the interested person.⁴⁵

Summary

An analysis of the depictions on blue and white Vietnamese ware makes it apparent that their symbolism is an inseparable element of Vietnamese culture. The fact

that some of the decorative elements were borrowed from China does not downgrade the richness of Viets’ culture. The symbolic imaging of nature became a part of the local tradition. The decorative motifs used in pottery workshops can be clearly divided into national symbols (lotus flower, peacock, phoenix), symbols of power and strength (chrysanthemum, dragon, tiger, *ruyi*),⁴⁶ beauty (peony, landscape), and prestige (bird, elephant, fish, turtle). This reflects the very rich imaginative potential of the artists and their ease of creation expressed especially in the pottery of that period. Admittedly, the majority of symbols used in ceramic paintings are adopted from Chinese culture. However, it is possible to notice differences in the stylistic rendering of graphical visualisations. The ornithological themes are an example of Vietnamese artists’ imagination. The artists painted native birds with a characteristic style, capturing all details with great accuracy. Moreover, not all of the symbols used in the decorative motifs on Vietnamese blue and white have Chinese roots. Both the peacock and the elephant have a purely Southeast Asian origin. These examples provide additional evidence that Vietnamese workshops were mixing the local tradition with adapted technology of ceramic production.

The potters successfully combined form with paintings, forging their own tradition associated with the elements of the popular Buddhist cultural current. The result is a product of high artistic and aesthetic value. The words of Kerry Nguyen Long are undoubtedly true: although studies on blue and white Vietnamese ware are still ongoing, it certainly gained its own individuality and national character.⁴⁷

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⁴⁴ Williams 2006, 330.

⁴⁵ May 2000, 150.

⁴⁶ These symbols are auspicious, similarly to the fish, turtle and bat.

⁴⁷ Nguyen Long 1999, 126.

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ABSTRACT

The article is dedicated to the first professor of prehistory at the University of Warsaw, Erazm Majewski, and his two students, Leon Kozłowski and Stefan Krukowski.

Keywords: University of Warsaw, Erazm Majewski, prehistory

A hundred years ago, on 29th October 1919, Erazm Majewski became Professor of Prehistory at the University of Warsaw (Fig. 1). This professorship was granted to a seriously ill man in the evening of his life, an industrialist of outstanding merit for Warsaw archaeology, a self-taught researcher, an enemy of Marx, in part a biologist (author of a dictionary of Polish zoological and botanical terms) (Fig. 2), a quasi-ethnographer (an interim editor of *Wista*), an industrialist-chemist (toothache drops). But above all, the first relatively competent Warsaw prehistorian, founder of the private Prehistoric Museum and originator of *Światowit* (1899).

When the Chief of State, Józef Piłsudski signed his nomination, Majewski was already severely ill and although he accepted the nomination, he was unable to give lectures. He started to search for a younger associate professor who would support him. At first, he thought of his students, Stefan Krukowski and Leon Kozłowski; Marian Himner was already dead (Fig. 3).

The former could not be taken into account because he did not have a maturity diploma, but the latter could since he had not only passed a matriculation exam, but also obtained a PhD title and habilitation. But it turned out that Leon Kozłowski, the beloved student of Erazm Majewski, had just lost his favour. So Majewski finally chose a candidate who was a stranger to him, a protégé of Józef Kostrzewski, Assoc. Prof. Włodzimierz Antoniewicz, who would eventually disappoint him as well since at that point nothing could comfort his afflicted soul.

I have documented it all below in the form of a timeline, presenting facts about a private ‘seminar’ of Erazm

Majewski, the tutor of Krukowski and Kozłowski, future prehistory professors, as well as the issue of his professorship and finally – the history of granting tenure at the University of Warsaw to Włodzimierz Antoniewicz, the chief of the university’s prehistorical studies until 1963.

As a formality, I shall remind readers that had it not been for the hostility of the Szkoła Główna Warszawska (Warsaw Main School) professors, we would be celebrating the 155th anniversary of archaeology at the University of Warsaw because Józef Łepkowski, before becoming a professor of archaeology at the Jagiellonian University (1866), applied for a tenure in Warsaw in 1865!

Erazm Majewski, the first Warsaw prehistorian, member of the Towarzystwo Naukowe Warszawskie (Warsaw Scientific Society, TNW), an important figure of the Warsaw upper crust, rubs shoulders with Cardinal Aleksander Kakowski, Henryk Sienkiewicz, Władysław Reymont, Stefan Żeromski, and attends the ‘tea parties’ hosted by the Chief of State in the Belvedere. In 1915, he is invited to the Kazimierz Palace for the inauguration of the Polish University, exchanges letters with Gabriel de Mortillet, Luigi Pigorini, Lubor Niederle and Gustaf Kossinna, Tytus Chałubiński, Jan Czekanowski, Włodzimierz Demetrykiewicz, Benedykt Dybowski, Karol Estreicher, Wojciech Gerson, Zygmunt Gumplewicz, Karol Hadaczek, Marcel Handelman, Jerzy and Mieczysław Karłowicz, Maria Konopnicka, Tadeusz Korzon, Józef Kostrzewski, Kazimierz Kulwieć, Władysław Mickiewicz, Kazimierz Nitsch, Bronisław Piłsudski, Ludomir Sawicki, Aleksander Semkowicz, Waław Sieroszewski and many others.



Fig. 1. Photograph of Erazm Majewski (from the author's archives).

Students

Here follows some information about Majewski's students, two of whom, Kozłowski and Krukowski, eventually became professors of prehistory, however without taking over the department at the University of Warsaw, due to different reasons.

Stefan Krukowski

1908

July–August: on E. Majewski's request, he performs field surveys (partially assisted by Leon Kozłowski) on sandy open sites in the Stopnica, Pińczów, and Warsaw districts (*Światowit* 9, 1911).

September: Krukowski excavates an early medieval tumuli in Jasudów in the Augustów district (*Światowit* 9, 1911).

He starts to work for the Museum of Erazm Majewski as a custodian assistant as well as an editorial assistant for *Światowit*.

1909

Together with Kozłowski, he performs a field survey of sandy open sites in the Warsaw district (*Światowit* 9, 1911).

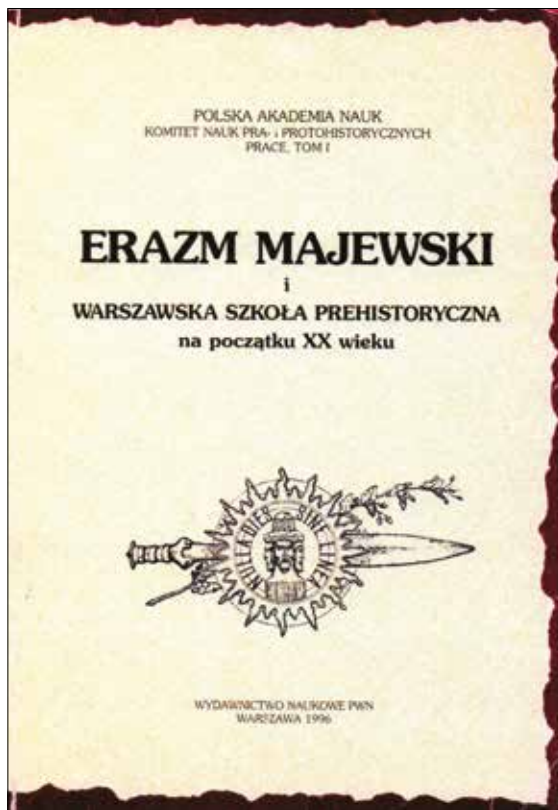


Fig. 2. Book on E. Majewski with the logo of the *Światowit* periodical (edited by S.K. Kozłowski and J. Lech).



Fig. 3. E. Majewski's book on zoological and botanical terms.

1910

March: field prospection of sandy open sites in the Grójec, Nowy Mińsk, and Warsaw districts (including Płudy with Kozłowski, see *Paleolit Polski*);

E. Majewski tries to persuade Krukowski, without success, to write a monographic comparative study of some of the Stopnica district sites (this was later done in Kozłowski's doctoral thesis).

1911

May: E. Majewski notes: "Krukowski visited me yesterday... brave boy and determined to devote himself to archaeology" (Majewski's notebook).

June: excavations of the tumulus in Lubiejewo in the Płock district (*Światowit* 10, 1912).

- excavations at the cemetery in Koziminy in the Płońsk district (*Światowit* 10, 1912).
- field prospection in eastern Masovia (Łajski) and Płudy near Warsaw.
- Krukowski compiles a collection catalogue for the Museum of Erazm Majewski.

1912

January: a text about the tumulus in Lubiejewo is ready for press (*Światowit* 10, 1912).

Autumn: Stefan Krukowski breaks his bonds with archaeology and starts his alcohol-distilling apprenticeship in Miastków near Pilawa.

November: during his apprenticeship, Krukowski ends his coverage of Koziminy (*Światowit* 10, 1912).

1913

January: gives up distilling apprenticeship and begs for any sort of paid job related to archaeology in his correspondence with E. Majewski.

Beginning of the year: becomes a secretary at the Museum of Erazm Majewski.

April: visits caves in Żłoty Potok and its vicinity.

Spring: E. Majewski notes: "... the boy gives a good account of himself..."

April/May: field surveys in the Będzin and Częstochowa districts (B. Ginter, *Światowit* 30, 1969).

May: E. Majewski orders Krukowski 'to stop at 40–50' (barrows in Wysokie).

- excavations at the Late Palaeolithic site in Płudy near Warsaw.

May–June: digs at the site in Wysokie, the Sejny district (*Światowit* 11, 1913).

June: finishes an article about burins (*Sprawozdania z Posiedzeń TNW, Wydział Nauk Antropologicznych* 8, 1915).

- is involved in the translation of *Lessons de préhistoire* by G. Engerrand for E. Majewski; he questions the proposed pay (2 kopecks for a line of text).

June–July: delivers a study to the TNW: 'Report from the Discovery of the Aurignacian and Tardenoisian

Industries in the Vicinity of Żarki' (Polish: *Sprawozdanie z odkrycia przemysłu orygniackiego i tardenuaskiego w okolicach Żarek*).

July: asks E. Majewski for permission to investigate the caves in Żłoty Potok.

- continuation of research in northern Jura Krakowsko-Częstochowska.

August: due to financial reasons, Krukowski wants to resign from work in Majewski's Museum.

August–September: excavations of the cemetery in Piwonice, the Kalisz district (*Światowit* 11, 1913).

Summer–Autumn: Krukowski purchases artefacts for the Museum of Erazm Majewski in the vicinities of Kalisz, Konin, and Turek.

September: excavations at the cemetery in Imielków (*Światowit* 11, 1913).

- excavations of the burial ground in Winiary, the Turek district.
- Krukowski deliberates on the methods of unearthing crumbling vessels (*Sprawozdania z Posiedzeń TNW, Wydział Nauk Antropologicznych* 7, 1914).
- thanks E. Majewski for offering him "a pre-lunch occupation", but considers the pay "too low" and instead proposes 50 roubles per month from the beginning of 1914.

September–November: custodian assistant at the Museum of Erazm Majewski.

October: finishes his text about the burial ground in Wysokie (*Światowit* 11, 1914).

November: becomes a junior assistant (*de facto* January 1914) in the Archaeological Department of the TNW's Anthropological Laboratory directed by K. Stołyhwo.

Autumn–Winter: prepares a very detailed scenario for the permanent exhibition at the Museum of Erazm Majewski, along with the precise arrangement of relics in showcases.

December: a TNW report: 'Classification of Flint Tools from the Vicinity of Warsaw' (Polish: 'Klasyfikacja narzędzi krzemiennych okolic Warszawy').

- finishes writing a paper: '*New By-product of the Neolithic Microlith*' (Polish: *Nowy odpadek mikrolitu neolitycznego*) (in: *Sprawozdania z Posiedzeń TNW, Wydział Nauk Antropologicznych* 7, 1917).
- text about the cemeteries in Piwonice and Imielków (*Światowit* 11, 1914).
- as the editor of *Światowit*, Krukowski corresponds with M. Himner about a publication on Pieniążkowa.

Winter 1913/14: works on a text about prehistoric burins and turning tools for publication.

- gets to know Sawicki: "Mr Sawicki Ludwik, Krochmalna Street no. 89".
- studies and describes the collections gathered by Samsonowicz and Czarnocki in the Museum of the

Polskie Towarzystwo Krajoznawcze (Polish Sight-seeing Society) in Kielce.

1914

January: Krukowski works on Himner's text for *Światowit*.

January 30th: a TNW report about the 'New By-product of the Neolithic Microlith' (*Sprawozdania z Posiedzeń TNW, Wydział Nauk Antropologicznych* 7, 1914).

Beginning of the year: assistant at the TNW's Anthropological Laboratory under K. Stołyhwo. A postcard from E. Majewski to S. Krukowski:

Mentona 19/3/1914

Dear Mr Stefan

... of course I do not mind you using my collection and photographing artefacts ... I want to draw your attention to the unfinished work around the spring collection from Czatachowa ... It behoves to finish one thing before starting another. Otherwise you will have arrears, which would be very undesirable. ... Feel free to take from the library and use whatever you may need...

E. Majewski

Since the beginning of 1914, Stefan Krukowski officially splits up with Majewski and moves to the Anthropological Laboratory of the TNW under the auspices of Stołyhwo, where he works as an assistant until he falls out with his new boss in a way resembling how he ceased to esteem his previous Master, E. Majewski, particularly after the mild reprimand from March of that year (see the above text of the postcard).

Leon Kozłowski

In the following timeline I have almost entirely omitted Leon's soldiering and political activity.

1908

First half: suicidal death of his father.

Summer: Leon moves with his brother Tomasz to the Warsaw house (at 42 Nowogrodzka Street) of their aunt, Irena W. Kosmowska and her husband, a doctor and social activist, Wiktoryn Kosmowski. There, Leon gets to know, among others, archaeologists Erazm Majewski and Jan Stanisław Czarnowski. Erazm will act as Leon's father and introduce him to prehistory.

– Kozłowski meets Stefan Krukowski.

1908–1909

July/August: on E. Majewski's request, together with Krukowski he investigates sandy open sites in the Stopnica and Pińczów districts.

1909

March: investigates, along with Krukowski, sandy open sites in the Warsaw district.

July: conducts his own field survey along the Przemsza, Dłubnia, and Szreniawa rivers (the resultant collection was later destroyed by the Russians); he donates the Warsaw suburban collections to the Museum of Erazm Majewski.

1910

March: field survey (with Krukowski) in Marcelin (Płudy near Warsaw); access from Białoleka by horse trolley.

Spring: maturity exam at Wróblewski's school.

– after consulting E. Majewski and W. Demetrykiewicz, Kozłowski signs up to the Jagiellonian University as an 'extraordinary student' at the faculties of chemistry and archaeology.

September: E. Majewski is concerned with interposing Leon's article in *Przegląd Fizjograficzny*.

1911

January: presents a summary of the results of his field prospection along the Przemsza and Dłubnia rivers before the Anthropological Commission of the TNW.

April: on behalf of E. Majewski, Kozłowski handles the purchase of the pottery from Złota from Z. Lenartowicz.

Summer: on behalf of K. Stołyhwo, he excavates the Sokola Skala site in Będkowiec, Małopolska; funded by the Elizabeth Thompson Scientific Fund.

– he also participates in Doctor Kuźniar's investigation of Okiennik.

– in addition, he excavates the Lusatian burial ground on Mount Klin in Iwanowice; the excavations are to be continued in the following years.

September: E. Majewski reads and discusses Leon's paper for *Światowit* about the Przemsza and Dłubnia research.

October: deeply sympathises with E. Majewski in his illness, writing: "I also once found myself between life and death – I became ... a cripple".

1912

May: rescue excavations (with Drewko) on the Lusatian burial grounds in Gorzyce and Sokolniki near Tarnobrzeg on behalf of the Polska Akademia Umiejętności (Academy of Learning, PAU).

Summer: employment in the Archaeological Museum of the PAU in Cracow.

July: rescue excavations for Majewski at the Roman Period cemetery in Wąchock; he visits the nearby locality of Pogwizdów to investigate a hill with "Slavic relics".

September (?): at the Naturhistorisches Museum in Vienna, he sees Bronze Age and Hallstatt materials.

October/November: arrival to Tübingen – studies. Leon begins from eoliths; he speaks German well, however his reading skills are worse. The museum at the Prehistoric Institute in Tübingen owns only Palaeolithic collections.

December: at the Tübingen University, Leon has already studied most of the German and French Palaeolithic collections and visited a museum in Stuttgart. Schmidt offered Leon to join an expedition to North Africa, Spain (paintings), Paris, Brussels, Liège, and Berlin.

- Leon tries to organise funding (from the Mianowski Fund and the PAU) for this expedition (which eventually falls through).
- Schmidt plans to excavate in Dordogne, Leon wants to go there as well.

1913

- Palaeolithic rescue excavations with W. Demetrykiewicz and W. Kuźniar close to the Kościuszko Memorial Tumulus in Cracow (Blessed Bronisława Hill).
- Kozłowski studies flint materials ('the microlith') in the Anthropological Laboratory of the TNW.
- publishes the Palaeolithic material from Jaksice and the Iwanowice-Babia Góra settlement.

January: professor from Tübingen invites Leon to collaborate with the Eastern Europe Department (Leon knows Russian!), and to participate in a research expedition to Russia.

January–March: studies simultaneously in Tübingen (until March 28) and at the Jagiellonian University.

February: accepts W. Demetrykiewicz's invitation to investigate the Kuyavian Neolithic barrows.

He visits the museum in Stuttgart, and later spends a few days in Vienna (Palaeolithic); he does not want to hand the Kuyavian material to E. Majewski and intends to transfer the materials from J. Zawisza's research in the Mamutowa Cave to Cracow.

March: wishes to excavate caves but Majewski reckons Leon not yet ready for that. He dreams of the Okiennik Cave. In regard to his cave plans he wants to invite foreigners (Schmidt, Hauser) as consultants.

Spring/Summer (?): despite Majewski's objections, he goes to the Mamutowa Cave, planning to excavate there "until it gets freezing"; he sets a tiny trench on a terrace in front of the cave and is forced to dispose of huge boulders.

April: visit in Berlin with R.R. Schmidt who recommends Leon for a member in both of the local Archaeological Societies (Kossinnas's and Schuchhardt's).

- in Berlin: work on Eastern European collections.
- plans of the research expedition to Russia are becoming more concrete.

May: in Warsaw, he fails to catch Janusz Radziwiłł with whom he hoped to arrange the lending of relics from the Mamutowa Cave to Cracow.

- Kuyavia: contact with Rev. Górczyński (Kuyavian barrows, private collection, attempt to draw some relics from it for Cracow), discovers a "Slavic culture mould" in Dąbie.

June: visits multiple barrows, chooses the area near Świerczyn for excavations, until now he has excavated two – Iłowo and Rogatki.

- digs another two barrows, this time in Świerczyn; he collects information about stone figures ('baba') in Kuyavia and Pałuki for W. Demetrykiewicz.

Eventually he excavates six barrows (Świerczyn, Iłowo, Rogatki, and Borucin); the daily wage is 1 rouble.

July: a letter from E. Majewski who resents the fact that Leon investigated the Mamutowa Cave wilfully.

Leon profusely excuses himself before W. Demetrykiewicz for his arbitrary excavations at the Mamutowa Cave (result of Majewski's intervention) and argues for teamwork (mentioning that Schmidt would gladly arrive).

August: Kozłowski tries to reclaim for the PAU Museum a hoard of Arabian coins from Dąbrowa Górnicza; in the meantime, he comes to terms with W. Kuźniar regarding the date for a joint research project.

September: excavations at Iwanowice-Babia Góra (Corded Ware cemetery, a Linear Pottery Culture Neolithic settlement).

1914

- studies 'the microlith' in the TNW and Majewski's Museum (the latter for his future doctoral dissertation).

January: Leon's lecture at the Anthropological Section of the TNW about the European Palaeolithic, with particular focus on Poland.

- acquisition of the Mamutowa Cave collections is finalised. Jan Zawisza's widow agrees for them to be compiled in a separate monograph and temporarily moved to Cracow; the material is to be elaborated by Leon Kozłowski.

March: works mostly on the Neolithic, almost finishes compiling research results from the Iwanowice cemetery.

April: finishes a paper about the residential pit in Iwanowice.

April/May: expedition with Schmidt to Russia (funded by the Russian side); they visit the Palaeolithic site in Kiev, Kyrilowska Street, and study Crimean caves.

May: on behalf of the PAU's Museum, he purchases a collection from Doctor Terlecki (mostly Polish artefacts), sends the chest to Przybysławice.

May/June: Schmidt and Kozłowski investigate three caves in the Caucasus, the most important is the two-levelled Sakajia.

Schmidt wants to perform excavations in Asia Minor in the following year (with Leon).

July: Leon obtains a collection from Sakajia (150–200 artefacts) for the PAU Museum, comes to believe that he “acquired quite sufficient excavation skills” and plans to finish work at the Mamutowa Cave and to excavate other Polish caves.

Leon carries bags with flint away from the Motsamet monastery (cf. *Stefan Krukowski and Leon Kozłowski in Georgia* in this volume).

– Leon’s return just before the outbreak of the First World War.

August: Outbreak of the First World War.

– Belina’s patrol of the Polish Legion, Leon crosses the borders of the Kingdom of Poland in a chase with propaganda materials and a bomb. He is tasked with agitation in the Miechów district.

August–September: in sequence: Polish military, district chief, recruiter, agitator, speaker.

November (?): joins the 1st Uhlands Regiment of the Polish Legions (under Major Belina-Prażmowski).

– devastation and robbery of the Przybysławice estate by the Russian army – the collections from the Przemsza and Dłubnia rivers, the Kuyavian barrows, as well as those bought in Russia are irretrievably lost.

1915

Summer: excavations on Mount Klin in Iwanowice.

July: Kozłowski leaves the 1st Regiment and is transferred to the military staff of the 1st Brigade.

November: declares to W. Demetrykiewicz that after the war he plans to work in Cracow and is not going to “be interested in new possibilities” opening for archaeology in Warsaw within the newly-opened University.

– compiles the new vessels from Złota excavated by Z. Lenartowicz for the Polish Sightseeing Society Museum in Kielce.

December 1st, 1915

“I was visited by L. Kozłowski (...) I persuaded him a lot and I think I sowed a seed” (E. Majewski’s notebook).

December 29th, 1915

“I think I oriented him in regard to politics. He occupies a prominent political post in the Radom Governorate, so it’s not indifferent” (E. Majewski’s notebook).

1916

February: another semester at the Jagiellonian University.

May: settles in Warsaw, returns to scholarly work, finds the Museum of Erazm Majewski in the middle of

reorganisation, decides to donate his collections to it and works there as a technician.

June: checks the inventory of the Museum of Erazm Majewski.

July: together with Kostrzewski, he works in the Municipal Museum (61 Podwale Street), arranging six archaeological exhibition rooms. He moves Majewski’s materials from Zachęta there, arranges a Stone Age exhibition, and co-authors a guidebook (Stone Age) with Kostrzewski, thus beginning his works on ‘Stone Age on dunes...’ (i.e. his doctoral dissertation: ‘Epoka kamienna na wydmach...’).

1917

At the Archaeological Department of the Anthropological Institute of the TNW

– studies on microliths, participation in scientific sessions.

Spring: visits the Jagiellonian University in relation to his PhD thesis.

April: at S. J. Czarnowski’s place in Miechów, he organises a transfer of a part of Czarnowski’s materials to Majewski’s Museum.

May: negotiates with Z. Lenartowicz the purchase of the Neolithic materials from Złota.

– finishes his doctoral dissertation in Przybysławice.

Summer: on E. Majewski’s request, he visits and performs trial trenches (without success) at a number of shelters and caves in northern Jura Krakowsko-Częstochowska.

September: graduation diploma from the Jagiellonian University, September 4th, 1917; Kozłowski has the summary of his doctoral thesis translated.

November: visits the Nietoperzowa Cave, then meets Z. Lenartowicz and discusses purchasing the Neolithic pottery from Złota for Majewski’s Museum.

1918

– Custodian (until 1920) of the Archaeological Museum of Erazm Majewski.

January: winter semester at the University in Tübingen.

– a visit in the newly-opened Museum in Halle (to learn its organisation as a model for Warsaw).

February/March: summer semester in Tübingen.

March: Kozłowski wants to pass his doctoral exams in April in Tübingen (main subject: prehistory, secondary subjects: geology and geography).

– together with Schmidt, he prepares a paper on Sakajia (never published).

June: visits the Römisch-Germanisches Museum in Mainz as well as the museums in Stuttgart, Munich, Vienna, and Berlin.

August: PhD in Tübingen.

– Erazm Majewski “reads and criticises” Leon’s doctoral dissertation.

- meets Krukowski in Ojców, tells him about his attempt to secure chests from Złoty Potok broken by an artillery grenade; a violent argument ensues as Krukowski believes that Leon wanted to appropriate his materials.

October: excavates the Nietoperzowa Cave (using E. Majewski's funds).

- persuades Krukowski, as well as Antoniewicz, Jakimowicz and Żurowski, to start conservation works.
- purchases the Złota collections for Majewski.

December: E. Majewski reports to the TNW on L. Kozłowski's doctoral book.

- the TNW accepts the work for print, which enables the nostrification of Leon Kozłowski's doctoral diploma from Tübingen.
- E. Majewski confers with Leon on the establishment of the Conservation Department for archaeology and notices his egoism and exuberant personal ambitions.

December/January 1919: relocates to Warsaw permanently.

1919

February: "... the Prehistoric Archaeology Department was established at the Warsaw University – I was chosen ... Leon is not going to be content about this ... he has already aspired for this position" (E. Majewski in his notebook).

March: Kozłowski congratulates E. Majewski on his professor nomination.

- (Kozłowski) "behaved very kindly and correctly when he learned about my candidacy" (E. Majewski's notebook).

September: upon receiving his professorship at the University of Warsaw, E. Majewski, seriously ill, wishes to start lectures and pass the Department to a younger scholar (he is thinking about Kozłowski).

- "maybe I will dare to give a few lectures, though... and then I will hand over the Department – Kozłowski shall be glad" (E. Majewski's notebook).

November: in Smolice and Nagórki, in the Łęczyckie Voivodship, Kozłowski excavates a Lusatian cemetery.

- Antoniewicz joins the competition for E. Majewski's successor.

1920

January: 'Leon finishes the «things» which he is supposed to present in Cracow for his habilitation' (Z. Budkova's diary).

February: E. Majewski complains about Kozłowski to Kostrzewski; he talks about him also with Antoniewicz.

- 'I openly wrote to Kostrzewski ... about the irritable issues around the department ... about Mr Leon Kozłowski, who is ... a worry of mine' (E. Majewski's notebook).

- 'The conservator's position is an interim thing for Antoniewicz on his way to placing himself in the Department' (Leon's letter to Demetrykiewicz).

- 'I intend to work in Warsaw in the future and I am supposed to replace Majewski, in agreement with him, at his position in the Department' (Leon's letter to Demetrykiewicz).

March: professors Demetrykiewicz, Szajnocha and Talko-Hryniewicz are called to the committee for Kozłowski's habilitation on the basis of his work: 'Megalithic Barrows East from Oder' (*Grobowce megalityczne na wschód od Odry*).

April: Leon proposes the topics for his lectures as associate professor to the committee at the Jagiellonian University: 'Methodology of Prehistory', 'On the oldest relics of humanity', 'Late Stone Age in Europe'.

April 24th: habilitation colloquium with professors Demetrykiewicz, Śleszyński, Kowalski, Szajnocha and Szafer.

April 26th, 11:00 AM: habilitation lecture: 'Neolithic Cultures in Poland'.

April: "I took part in the habilitation colloquium ... So if it would be convenient for you, Professor, to work with me as an associate professor, I would be extremely glad" (Leon's letter to Majewski).

- Kozłowski plans to work as an associate professor under E. Majewski at the University of Warsaw and in his Museum.

May: E. Majewski considers, prompted by Kostrzewski, hiring Antoniewicz at the University of Warsaw, Majewski suspects 'Kozłowski' (Leon) "messes up" with his documents in the University's rector's office.

- The Council of the Faculty of Philosophy at the Jagiellonian University grants Kozłowski *venia docendi* in Prehistory.

June: the ministry approves Kozłowski's habilitation at the Jagiellonian University, under the condition of nostrification of his doctoral diploma.

September: takes over the Prehistoric Archaeology Department at the University of Jan Kazimierz in Lviv (UJK).

December: demobilised.

None of Majewski's students (Stefan Krukowski, Leon Kozłowski, Marian Himner) would eventually take over the post left by their Master. Marian Himner, after defending a brilliant doctorate at the Sorbonne, died an aviator's death in southern France. Stefan Krukowski, having antagonised Majewski, associated himself with Kazimierz Stołyhwo and his Anthropological Laboratory of the TNW.

The one closest to Mr Erazm's heart, Leon Kozłowski, deservedly counted on becoming his assistant and successor at the Warsaw University but fate decided otherwise. Majewski was approached by Józef Kostrzewski who promoted another candidate, Włodzimierz Antoniewicz.

Seriously ill, the professor did not give a single lecture at the University of Warsaw, while Antoniewicz ingratiated with him, and criticized his colleague.

In the meantime, Leon Kozłowski undertook an extremely fierce self-promotional campaign in Warsaw, which scared the old and ill man. Politics also played a role, since Majewski was rather a pro-Russian national democrat, whereas Kozłowski leaned towards pro-

Austrian socialism. All of this paved the way for the promotion of Włodzimierz Antoniewicz, strongly supported by Kostrzewski, and made the path more difficult for Leon Kozłowski. However, although Antoniewicz would later also fall out of favour with Majewski's afflicted psyche, it was already too late. Erazm Majewski died in 1922 and Włodzimierz Antoniewicz continued as the head of Prehistory at the University of Warsaw until 1963.

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STEFAN KRUKOWSKI AND LEON KOZŁOWSKI IN GEORGIA

ABSTRACT

Stefan Krukowski describes the fuss that followed when Leon Kozłowski helped to persuade the Motsamet

monastery in Georgia to give up the material from the Sakajia Cave.

Keywords: Stefan Krukowski, Leon Kozłowski, Sakajia

Stefan Krukowski was a self-taught man without a maturity diploma who was hired by E. Majewski and later by K. Stołyhwo (Fig. 1). A poor boy, fiercely ambitious, with some emotional problems and mental issues, very gifted. While working for Majewski, he takes the time to read, studies the collection, performs excavations, does editing work for *Światowit*, and learns. In 1915, he runs his own excavations in Kostienki I and Gwardzilas Klde.

He reaches the Caucasus in June 1915, during World War I, as a member of 'Opolchenie', a conscript of the 3rd Army of General Yudenich fighting the Turks in Anatolia. Miraculously, he is spared service at the front and allowed to work for the Caucasian Museum in Tbilisi. Strange.

Next are 1.5-month-long excavations in the Gwardzilas Klde cave, with a trench spanning several hundred square metres, stratigraphy, documented profiles, malaria, abundant Upper-Palaeolithic finds of the Imeretian style; documentation drawings are prepared for a planned publication whose Russian text will be published and translated into three languages by the young scholars from the Institute of Archaeology of the University of Warsaw, led by Małgorzata Kot.

The young author's text demonstrates his already quite advanced professionalism (as shown by elements of the 'chaîne opératoire' or 'core-reduction process'), while at the same time including certain typological oddities (such as ascribing the term 'scraper' to a particular retouch on a stone tool rather than the whole artefact form) – the latter to be rejected by the scholar as he matures.

The Gwardzilas Klde monograph was supposed to be published in Tbilisi (hence the choice of language), but Vladimir Ilyich Lenin decided otherwise and the

whole project collapsed, just as the Empire itself not long afterwards. Georgia, Gwardzilas Klde and Tbilisi lost all their appeal to Stefan, since the Brightest Polish Commonwealth was about to be reborn. Hence, in 1918 Stefan's mind was set on returning to Warsaw (over 2200 km away!) as soon as possible.

However, before departing he performed a sort of investigation on the Caucasian actions of his friend but also rival, Leon Kozłowski (Fig. 2). Already before the war, Leon excavated another Georgian cave – Sakajia – under the auspices of Rudolf Schmidt. That one also yielded Upper/Late-Palaeolithic material.

In the archives of Stefan Krukowski, a text was preserved describing Kozłowski's adventures related to the Sakajia finds. Its fragments are quoted below.

The first witness:

R. R. S[chmidt] and L. Kozłowski arrived at Kutaisi in the second half of May 1914.

Towards the end of the digging, one evening L. Kozłowski, assisted by his diggers, tried to transport bags full of finds across a stream. Alarmed, the prior (of the Motsamet monastery) went out and started to scold Kozłowski for his impertinence and takeover of the monastery's property. L. K[ozłowski] replied something impudent. Nevertheless, he was held back with the finds. The bishop in Kutaisi was notified immediately. R. R. Schmidt visited the bishop and offered his deep apologies. This incident gained publicity in the town and local press.

The second witness:

L. Kozłowski was a young, self-confident, impetuous and very clever man who would play by fair means or foul; he asked the then prior for a permit to dig in



Fig. 1. Photograph of S. Krukowski (PMA).



Fig. 2. Photograph of L. Kozłowski (NAC).

the caves, to which he obtained a conditional approval. Sometime afterwards, he returned with a letter from the bishop and started his excavations, routinely staying overnight in a tent near the cave. The witness emphasised the fact that nothing of what was found therein was ever moved to the monastery where Kozłowski temporarily resided.

And here in a different tone (Stefan Karol Kozłowski):

“The finds were deposited in one of the rooms for visitors in the monastery. Before attempting to cart everything away from Motsamet, he [Leon Kozłowski] tried to carry the full bags across the stream on the backs of his diggers to the rallying point by the cave, wherefrom nine bags in total were to be transported in a similar way across a steep mountain ascending above the cave to the other side; there, carts awaited ready to carry the load to Kutaisi.

The monastery was alarmed by observant monks and additionally warned in advance by the diggers. The prior arrived and, having gauged the situation, exclaimed his outrage at L. K., all the more so since L. K. had always been treated politely and hospitably in the monastery, more than once dining with the prior upon invitation. While explaining to L. Kozłowski the inappropriateness

of his demeanour – carrying away things found in the monastery’s soil in secret, under the cover of darkness and through byways – he put particular emphasis on the fact that he, as prior, was morally and formally responsible for handling this incident on behalf of the monks and the local populace.

To this L. K. replied defiantly, ignoring the prior’s remarks. L. K. was then demanded not to take the unearthed relics away from the monastery until his unintelligible conduct was reported to the bishop who would make a final decision. L. K. angrily reproached the speakers that they were dealing with men of science, not thugs, and should be grateful that scholarly material had been excavated in their land. Then, he moved on to insisting on the finds being released, in support of which he pulled out his Mauser and pointed it at the prior. This caused a stir among those present. Persuaded by a gun barrel pointed at him by a guard, L. K. lowered his Mauser and only through the agency of their spiritual leader did the young monks restrain themselves from getting even with the turkey-cock. Afterwards, he went on foot to Kutaisi and returned with a new permit from the bishop to take away the finds.”

And a commentary – it remains unclear why Stefan gathered all the information about Leon. While by all probability he never used it, the very idea of keeping a record of unflattering accounts about a friend suggests that our protagonist's mental disorder had already surfaced by then.

In 1918, the garrison in Tiflis sides with the Bolsheviks, simultaneously the National Council is established and pushes for Georgian independency, the Turks intervene in March, and the Transcaucasian Republic is

founded in April, only to be replaced by the Democratic Republic of Georgia in May, while the Germans take over the Caucasus in April 1918. In June of the same year, Stefan sets forth on his journey to Warsaw: he takes a train to Batumi, makes it to the Crimea by ship, continues his sea travel to Odessa, changes back to train to get to Hołuby, next arrives in Równe (how?), and finally gets off the train in Warsaw.

Thus Stefan's youthful adventure in the Caucasus came to a conclusion.

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THE ETHNOGRAPHIC AMBITIONS OF SEVEN POLISH ARCHAEOLOGISTS

ABSTRACT

The article recalls the ethnographic interests of a few Polish archaeologists and one historian.

Keywords: archaeology, ethnography, interdisciplinarity

Ethnographers and archaeologists, prehistorians and protohistorians, are brothers and sisters in one faith although of different rites – or so we were told by our mentors.

Before World War II, starting from 1932, we shared master's classes (attended also by physical anthropologists), although our studies naturally differed in details and ultimately each of us would choose their own path, be it ethnographic or archaeological, or anthropological. There were also those of us who practiced two disciplines at the same time, with varying intensity or in different periods of their lives. After the war, we briefly shared classes again, this time studying the Soviet-style 'History of Material Culture'. Three years of a shared 'ethno-archaeo' life and, ultimately, a master's degree in either prehistoric or classical archaeology, or ethnography.

Invited to write a biographic entry on Janina Rosen-Przeworska for a new project, *Lexicon of Polish Ethnographers and Ethnologists*, I was able to suggest a few other names for the Lexicon and volunteered to contribute the relevant entries. The texts were written, but the publication project died on the vine, so I was left with these few pages I was reluctant to let go to waste. In my youth, I had edited a few issues of *Światowit*, a journal dear to my heart, so it was a happy moment when the current editors kindly accepted these writings of mine. Herewith, I submit these biographical entries to the benefit of interested readers and the joy of Angels.

Włodzimierz Antoniewicz,
my Mentor (Fig. 1).

Professor of archaeology and ethnographer, author of the first modern synthesis of Polish prehistory

(*Archeologia Polski* [Archaeology of Poland], Warszawa 1928).

Antoniewicz was born in Sambor (today in Ukraine, then in the Polish Eastern Borderlands) on 15 July 1893, into a clerical family of Polish Armenians, and died in Cracow in 1973. He received his schooling in Lviv, graduating in 1912 from a branch of the VIII Classical Gymnasium.

A fortuitous meeting with Bohdan Janusz (see below), a Ukrainian-Polish scholar specializing in ancient studies, awakened the young man's fascination with antiquities of all kinds, archaeology, regional history, and ethnography. Acting as his mentor, Janusz introduced Antoniewicz to the study of the past, starting with tours of historic sites around Lviv and beyond, sightseeing visits to the Carpathians, first the river valleys and then the real mountains, and sharing popular books. Ultimately, he encouraged the bright youngster to start reading up on 'national archaeology'. About the same time, Antoniewicz met two other men who would become his mentors. One was Mieczysław Orłowicz who taught him, through the Academic Tourist Club, to love the mountains. The other was Kazimierz Kulwieć, co-founder of the Polish Tourist Society and editor of *Ziemia* [The Land], who drew him into the journal's orbit. Meanwhile Janusz convinced him to start writing, beginning with some popular texts on ethnographic themes, among others.

While repairing his health in Zakopane after graduating from school in 1912, Antoniewicz was overcome by the charm of the Tatras and the local people and their culture. He would return there in his free time for the next several dozen years, dreaming of establishing a Tatra Highlands University and studying highlanders' pines which he inadvertently derived from Gothic accessories.



Fig. 1. Photograph of W. Antoniewicz (from the author's archives).

During World War I, Antoniewicz was severely wounded during war operations in the Carpathian region. Medical treatment in Vienna gave him the opportunity to continue his studies. He then became a guardian of the archaeological museum in Cracow, conducted investigations on the royal Wawel Hill (in the rotunda!), and became Deputy Head of the Cultural Department of the provisional Polish authorities in Cracow.

Antoniewicz began his formal academic studies at the University of Lviv in 1912, supervised by Prof. Karol Hadaczek (and Jan Czekanowski in the case of ethnography). The following academic year (1913/1914) he was already at the Jagiellonian University in Cracow, studying with Prof. Włodzimierz Demetrykiewicz. The next semester (in the 1914/1915 academic year) was a time he spent in Vienna, supervised by Prof. Moritz Hoernes and Assist. Prof. Oswald Menghin, and the year after that he attended, informally, the lectures of Prof. Lubor Niederle in Prague. In 1918, after two more years of studying with Prof. Piotr Bieńkowski at the Jagiellonian University in Cracow, he submitted his doctoral dissertation on amber in prehistoric times. His habilitation book in 1920 was on the Bronze Age in Eastern Galicia and he received a full professorship in 1924.

Meanwhile, in 1920 Antoniewicz became Deputy President of the Prehistoric Monument Conservation Authority. Charged with reconstruction of the dilapidat-

ed Erazm Majewski Museum, he reorganized the institution, going on to become its long-time director. At the same time, he was active in reorganising the collections of regional museums in Łowicz, Sandomierz and Vilnius – this work led him to develop a concept for a multi-department regional museum including ethnography (article published in the *Ziemia* journal in 1926). While chairing the Regional Museums Section of the Union of Polish Museums he visited provincial museums. He also introduced museological studies to the archaeological university curriculum. His many achievements in this field also gave him a seat on the State Museum Council.

Generally, the years following his habilitation, from 1920 to 1928, were devoted to organising the scholarly and scientific life in newly independent Poland. This involved reclaiming collections stolen during the war, the conservation of monuments in Poland and abroad, drawing inventories of archaeological finds, academic teaching of archaeology, managing the affairs of university staff, museums, as well as his work with regional collections, ethnographic aspects included, as described above (Fig. 2).

For a few years in the early 1920s, Antoniewicz was chief editor of the Cracow-based journal, *Wiadomości Numizmatyczno-Archeologiczne* [Numismatic and Archaeological News]. After leaving the journal, already in Warsaw, he revived *Światowit* as a journal of the Warsaw Scientific Society (TNW).

From 1921 to 1939, he lectured as a professor at the University of Warsaw, Vilnius University, and the Free Polish University. He headed the Prehistoric Archaeology Department at the University of Warsaw, then became Dean of the Faculty of Humanities and finally Rector of the University, later renamed as Józef Piłsudski University (1936–1939, 1945). In this capacity, he oversaw the granting of *honoris causa* doctoral degrees to Bolesław Limanowski, Edward Rydz-Śmigły and Józef Beck, the luminaries of Polish pre-war academic and political life.

Stripped of all functions and working as a central heating system stoker during the Nazi occupation, Antoniewicz continued to lecture in the clandestine University of Warsaw and was member of the clandestine Senate of the University. In late 1944, in Milanówek near Warsaw, he organized post-uprising help for the professors of the University of Warsaw and the Warsaw University of Technology.

After World War II, the new authorities of Poland accused him of collaboration, being part of the Sanitation movement before the war, introducing the ill-famed 'ghetto benches' into university practice and being pro-German (an accusation derived from a scholarly debate on the presence of Germanic tribes in Polish territory in proto-historical times). The 'ghetto benches' policy is the only issue that cannot be put aside, the rest may be explained either by political issues or envy on the part of his rivals.



Fig. 2. Book on highlanders' pins.

Cleared of all accusations by the University of Warsaw Disciplinary Commission, Antoniewicz was able to continue his academic career. Within the framework of the 'Origins of the Polish State Program', he explored the stronghold at Wiślica. In 1958, he founded the Group for the Study of the Polish Middle Ages at the University of Warsaw and the Warsaw University of Technology, a non-academic, independent research organisation, and went on to discover, within the Group's program, two rotundas and palatia in Wiślica, a Romanesque decorated pavement in the same town, and a small church at Batalionów Chłopskich Street. He also chaired the Archaeological Atlas Department of the Institute of the History of Material Culture at the Polish Academy of Sciences. At the University, he was responsible for supervising fourteen doctoral theses, as well as reviewing professorship candidates, habilitations, and doctoral degrees.

Early in his academic career, Antoniewicz penned many popular articles on topics including ethnography, published in Warsaw, Cracow and Lviv dailies and periodicals (*Rok Polski* [The Polish Year], *Wiek Nowy* [The

New Age], *Goniec Poranny* [The Morning Liaison], *Świat* [The World], *Kurier Lwowski* [The Lviv Courier], *Ziemia* [The Land], *Dziennik Polski* [The Polish Daily], *Gazeta Poranna* [The Morning Gazette], *Nasza Turystyka* [Our Tourism], *Gazeta Lwowska* [The Lviv Gazette], etc.). Since 1919, however, he concentrated in his writing almost exclusively on issues relating to prehistory. His intelligent but controversial book, *Metalowe spinki góralskie* [Highlanders' metal pins] was published in Cracow in 1928. After World War II, he published several other books, including his own *Historia sztuki najdawniejszych społeczeństw pierwotnych* [Art history of the earliest prehistoric communities] (Warszawa 1957) with many ethnological references to L. Morgan and E.B. Taylor, as well as the eighteen-volume *Pasterstwo Tatr i Podhala* [Pastoralism in the Tatras and Podhale] which he edited (Wrocław 1959–70). His contribution to the study of the presence of the Goths in Polish territories during the Roman Period (published in *Przegląd Zachodni* [The Western Review], 1951) is what earned him the pro-German label in the early post-war years.

Specifically in the field of ethnography, Antoniewicz wrote some popular texts in his youth based on public lectures, concerning small wooden orthodox churches near Sanok, the Księżacy ethnic group in the Łowicz Duchy, traditional painted Easter eggs, the earliest Polish Christmas carols, the synagogue in Belz, and wooden churches in Western Galicia. As a friend of Juliusz Zborowski, director of the Tatra Museum, he wrote for the *Lud* [Folk] journal, helped to nominate Janina Krajewska as director of the Gdynia City Museum, persuaded Cezaria Baudouin de Courtenay-Ehrenkreutz Jędrzejewiczowa to take the Ethnographic Chair at the University of Warsaw, and actively participated in the debate on shaping the *Polish Ethnographic Atlas*.¹

Erazm Majewski, my Mentor's boss.

First professor of prehistory in Warsaw, museologist. The son of an industrialist, Majewski was born in Lublin on 2 June 1858 and died in Warsaw on 14 November 1922.

He started his education in Lublin, attending the local Staszic Gymnasium, but graduated from school in Warsaw in 1877, after his family had moved there ca. 1870. In 1877, Majewski enrolled at the Imperial Warsaw University to study chemistry and pharmacy, but interrupted his studies after the death of his father in order to take over the family business (his father had founded

¹ Kozłowski 2009; 2012; Kozłowski, Kolendo 1993; Kutrzeba-Pojnarowa 1975.

the Warsaw Chemical Laboratory, specialty: toothache drops). He attended a pharmaceutical course in Warsaw and a three-year practical course in Riga.

Parallel to running the business, the young man got involved as an amateur in different fields of science. His interests were very broad and led to a number of publications in biology (*Słownik nazwisk zoologicznych i botanicznych polskich* [Dictionary of Polish Names in Zoology and Botany], vols 1–2, Warsaw 1891–1897), sociology and philosophy (*Nauka o cywilizacji* [The Science of Civilization], Warsaw 1908). He started to collect prehistoric artefacts and amassed an archaeological collection which grew too big for his flat. Based on this core collection, in 1892 he established the Prehistoric Museum and hired Stefan Krukowski and Leon Kozłowski in 1907/08 to work in it. From this time on, he would have assistants and students to conduct fieldwork.

Majewski wrote a great deal for *Światowit*, a Warsaw journal which he established in 1899, the second periodical of the kind in the capital after the defunct Polish archaeological journal, *Wiadomości Archeologiczne*. Krukowski worked there as a secretary. The journal included, among others, his series on 'The Stopnice district in prehistoric times'. He also published an article in France on the clay model of the so-called 'hut' from Popudnia which Marian Himner had excavated.

He took a particular interest in the progress made by Kozłowski and consulted his doctoral dissertation, thinking of making him his successor. Unable to gain promotion for the young scholars in Warsaw, he sent them abroad to study: Kozłowski went to Cracow (then in the Austro-Hungarian Empire) and Tübingen, while Himner was sent to Paris. Later he explored the possibility of publishing Himner's Paris dissertation in *Światowit*.

In 1919, the chief of the newly independent State of Poland nominated Majewski as Professor at the University of Warsaw. Incapable of lecturing because of severe illness, he searched for an assistant. Kozłowski was a natural candidate, but ultimately Majewski followed Józef Kostrzewski's advice and picked Włodzimierz Antoniewicz. Shortly before his death, in 1920, Majewski was appointed president of the State Group of Conservators of Prehistoric Monuments.

A prehistorian by choice, he nonetheless studied ethnographic issues, publishing in many journals, mainly Warsaw-based ones. His articles popularised the significance of particular plants (hop, poppy-seeds, potatoes) and animals (bison, snake, bear, cuckoo, owl, raven, etc.) in the beliefs and customs of the Polish people. He also wrote about cannibalism. He quoted (unfortunately without giving his sources) folk names in his *Słownik nazwisk*



Fig. 3. *Wisła* – ethnographic periodical edited by E. Majewski.

zoologicznych i botanicznych polskich (Warsaw 1891–1897). He also wrote about ethnographic museums. For a few years he was also chief editor of the ethnographic journal *Wisła* (Fig. 3), which he financed from his own resources. He consulted the more important matters with Jan Karłowicz. His position in ethnographic studies was sufficiently respected for the University of Lviv to offer him the Chair of Ethnology. Majewski declined, choosing instead the Chair of Prehistory at the University of Warsaw.²

Kazimierz Skowroński, helped me with the material for my doctoral dissertation (Fig. 4).

Historian with an interest in regional studies, teacher, social activist, conspirer, politician. Skowroński was born into a clerical family in Kolbuszowa on 30 May 1907; he died on 26 November 1974. He attended a pri-

² Kozłowski, Kolendo 1993; Kozłowski, Lech 1996; Krajewska 2012; *Polski Słownik Biograficzny*, Kraków 1974.



Fig. 4. Photograph of K. Skowroński (from the author's archives).

mary school in Kolbuszowa, and gymnasia first in his hometown and then in Mielec. In 1925, he enrolled at the Jagiellonian University and defended his doctoral dissertation in 1932 ('Studies of settlement in the basin of the Wisłoka and San rivers') under the supervision of Prof. J. Dąbrowski. He also became a certified teacher, teaching at gymnasia in Turek and Rzeszów. On top of that, he was a scout leader, managing a ZHP (The Polish Scouting and Guiding Association) troop in Kolbuszowa.

Skowroński spent World War II in Kolbuszowa, participating in the actions of the 'Odwet' [Retaliation] and ZWZ (Union of Armed Struggle) units, and finally the Home Army (AK) (pseudonyms 'Figa', 'Kowal', 'Piotr'), including the V1 and V2 rocket launch pads reconnoitering operation in Blizna, as well as clandestine press distribution, and secret education (Werynia, Poręby Dymarskie, Kolbuszowa) in the underground SL 'Roch' party. He also co-edited the journal *Wiarus* [Veteran Soldier]. In 1943, he was a member of the underground State Education and Culture Commission of the Government Delegation. He penned a monograph on the history of Kolbuszowa and the district.

After the war, he devoted his time to community work. This included membership in the Electrification

Committee in rural areas and Municipal/District National Council, organizing education administration, and working as a school inspector and Gymnasium director (and teacher, also in a secondary school for adults).

In 1947, Skowroński was arrested by the secret police. In 1952, under pressure from activists from the Union of Polish Youth, a communist youth organization, he was transferred to Mielec (1950–1951) and then to a rural Agricultural Secondary School in Werynia.

After October '56 he was a Sejm [Polish parliament] deputy and a member of the 'Znak' parliamentary club. He was instrumental in inaugurating a railway connection from Rzeszów to Nowa Dęba through Kolbuszowa (today reaching Warsaw). While acting as a deputy in parliament, Skowroński founded the Jan M. Goslar Society for the Protection of Natural and Cultural Monuments (1956), over which he presided until his death. He organized an exhibition on the 'Folklore of the Lasowiaki people' (1957, District Cultural Centre) and founded the Museum of the Lasowiaki Folk Culture (1959) in an old synagogue on Piekarska Street. It was there that he exhibited archaeological and ethnographic artefacts from the region.

Other temporary exhibitions followed: 'Monuments of the Kolbuszowa district in the watercolours of Józef Augustynowicz' (1961), 'A Lusatian cemetery in Trzęsówka' (1961), 'The Rzeszów Land at the dawn of history in the light of excavations' (1962), 'Zygmunt Ajdukiewicz, a painter of the Lasowiaki people', 'Kolbuszowa furniture' (1972), 'Ritual art of the Lasowiaki and Rzeszów people' (1972). The Museum was nationalised in 1971.

Skowroński authored several historical and ethnographic studies on Kolbuszowa and the Sandomierz Forest. Together with his nephew, Maciej, he worked to found the Ethnographic Park/Open Museum of the Lasowiaki People, which is located on the fringes of Kolbuszowa. Earlier, on behalf of the State Institute of Art, he studied the folk culture of the Kolbuszowa region (Fig. 5).

Skowroński penetrated the drainage basin of the Przyrwa River, discovering a number of archaeological sites, chiefly of Mesolithic date. Some of these, e.g. Majdan Królewski, Poręby Dymarskie, Komorów, Płazówka, Ranizów, were later excavated by Stefan K. Kozłowski, who published his results in the *Archeologia Polski* [Polish Archaeology] journal, vol. 9, and later used them, together with other data entrusted to him by the discoverer, in his doctoral dissertation (*Wiadomości Archeologiczne*, vol. 34) and habilitation work (*The prehistory of Polish lands from the 9th to the 5th millennium BC*, Warsaw 1972).³

³ *Polski Słownik Biograficzny*, vol. 37, Kraków 1997; *Rocznik Kolbuszowski* 5, 2001; Folk Culture Museum in Kolbuszowa, archives.



Fig. 5. 235-year-old granary from Biedziny, Kolbuszowa Ethnographic Park (from the author's archives).

Włodzimierz Hołubowicz,
Gallant Cossack's son.

Professor of archaeology at the University of Wrocław, ethno-archaeologist (Fig. 6). Born in Yekaterinoslav on 20 June 1908 as the son of a Polish craftsman deported in 1905 and a Cossack mother, Hołubowicz died in Stockholm in 1962. Repatriated to Poland, he started his education in a Russian primary school in Vilnius, continuing in the Classical Gymnasium in Vilnius from which he graduated in 1928. He then enrolled to study law at the Stefan Batory University in the same city.

Early in his career, Hołubowicz worked as a court journalist, writing for the daily *Kurier Wileński* [The Vilnius Courier], and repeatedly travelled abroad for study purposes with his wife, Helena Cehak. At that

time, he studied traditional Belarus pottery-making in the Polish Eastern Borderlands; this resulted in a book 20 years later. At the University, he studied ethnography with Kazimierz Moszyński as well as history with a preference for prehistory. His master's thesis was in ethnography.

In the years 1939 to 1941, the young scholar worked for the Art Museum in Vilnius, excavated the Vilnius Castle Hill and participated in a Soviet archaeological congress. At the invitation of Stefan Jędrychowski, he wrote for the leftist *Gazeta Ludowa* [The Folk Gazette].

During the Nazi occupation, he and his wife left for Bezdany where he made a living by selling what he could and working as an agricultural labourer. The couple returned to Vilnius, from where the Nazis sent them to Vienna to do forced labour at the Prehistoric Museum. After the war, the two spent time at the Russian NKVD



Fig. 6. Prof. Hołubowicz throwing a pot during a students' workshop in Biskupin (from the author's archives).

filtration camp in Austria and Hołubowicz was obliged to go to work at the Belarussian Academy of Sciences in Minsk. With his wife, Hołubowicz investigated the Minsk and Grodno castles before returning to Poland. He then studied archaeology in Toruń and was a delegate of the Ministry of Education representing the younger scholars. At the same time, Helena worked as assistant professor at the Nicolaus Copernicus University.

Hołubowicz wrote his master's thesis supervised by Józef Kostrzewski, while his doctoral thesis, on the research methodology of cultural layers at the Nicolaus Copernicus University in Toruń, under the supervision of Roman Jakimowicz. In 1950, the year in which the couple moved to Wrocław, he was habilitated following the publication of his book on *Rural pottery-making in western Belarus territory*, an exhaustive study of pot-making spanning almost three hundred pages of text, with illustrations, tables and maps, published by the Scientific Society in Toruń. The book was of paramount significance for comparative studies (according to E. Fryś-Pitruszkowa in *Polska Sztuka Ludowa* [Polish Folk Art], vol. 18). His 'Rural pot-making in Albania' in *Archeologia Śląska* and the two-hundred-page-long *Pot-making of early medieval Slavs* were published at the same time. He also trained students in pot-making during sessions held at the Biskupin stronghold site.

In 1951, Hołubowicz was nominated assistant professor at the University of Wrocław. He was politically active, provocative and conflicted with prewar prehistorians. In many ways, he was modern in his thinking – and this at the darkest times of Stalinism in Poland. He wanted to introduce a course in the history of the Soviet Union in the curriculum of studies on the history of material culture, which is where archaeology and ethnography was taught together. He was instrumental in making this 'marriage' of scholarly domains possible.⁴

Bohdan Janusz, between Ukrainians and Poles.

Amateur scholar of ancient studies from Lviv, populariser (Fig. 7). Janusz was born into a Polish-Ukrainian family in 1887 in Lviv; he committed suicide there on 5 November 1930.

He attended classes at the Ukrainian Gymnasium in the National House in Lviv but dropped out. His adventure with antiquities started in the fifth grade, ca. 1905. He met Karol Hadaczek, whose lectures and excavations he attended. He propagated interest in ancient



Fig. 7. Photograph of B. Janusz (from the author's archives).

studies and ethnography among archaeology students – Włodzimierz Antoniewicz, Volodymir Hrebeniak and Jaroslav Pasternak – touring the region with them and lending them literature on relevant topics. He promoted their pieces of popular writing in *Ziemia* [The Land], *Gazeta Lwowska* [The Lviv Gazette] and *Dilo*; he also published extensively himself (articles, mainly in the Lviv press, but also in *Ziemia*, *Tygodnik Ilustrowany* [Illustrated Weekly], *Na naszej ziemi* [In Our Land], *Wszechświat* [The Universe]). He was not a field researcher. His main archaeological study, *On the prehistoric monuments of Eastern Galicia* (Lviv 1918), was totally uncritical, an outcome of unprofessional self-education efforts. He compensated for his lack of interest in fieldwork with ethno-archaeological questionnaires that he sent out to interested parties.

With the end of World War I, Janusz withdrew from archaeology, instead devoting himself to studies of regional history (Lviv from the princely period, the Armenians of Lviv, the Polish Karaites, also from an ethnographic point of view, Freemasons, and the Russian occupation of Lviv). He was more of a 19th-century antiquarian than researcher. As an amateur, he studied history, art history, Armenian local culture, ethnography (notes on small Orthodox churches), and archaeology (Fig. 8).

⁴ Kozłowski 2015; Archives of the University of Wrocław, Nicolaus Copernicus University in Toruń and Institute of

Archaeology and Ethnology, Polish Academy of Sciences in Warsaw; Hołubowicz 1948; 1950.

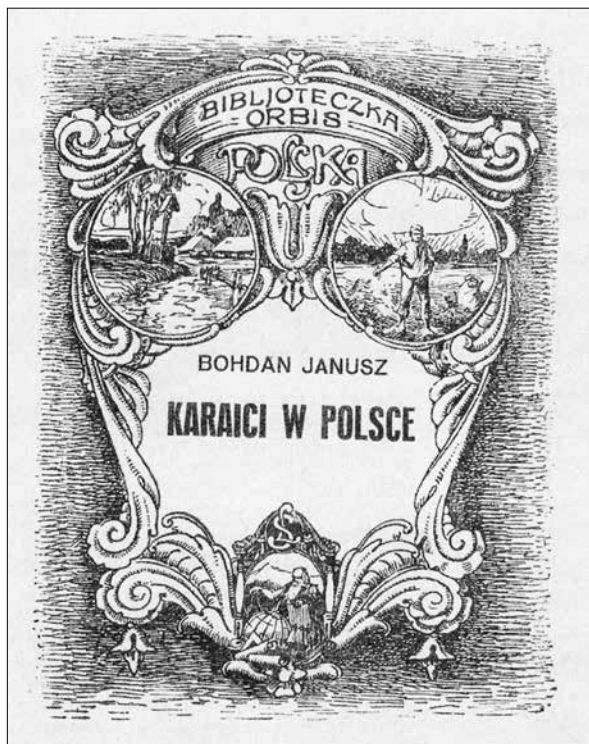


Fig. 8. Book on the religious community of Karaites in Poland.

Always on the verge of bankruptcy, controversial and incautious in contacts with people, in 1907 he forged a relationship with the Shevchenko Ukrainian Society and got attached to the Society's Museum. Following a conflict, he broke with the Ukrainian community and attempted to become part of the Polish community but without much success.

In 1923, he became a member of the State Group of Conservators of Prehistoric Monuments and an archaeological conservator to the south-eastern Borderlands. It was then that he spent his time sending out questionnaires and organizing a network of ethno-archaeological delegates-correspondents, occasionally venturing into the field. He arranged private collections, planned the Podolyan Museum in Tarnopol, and put in a brief stint as manager of the Museum of the Pokucie Historical Region in Stanisławów; both had multiple sections, including an ethnographic one.

Following his conflict with J. Piotrowski, a provincial conservator, he was released from his job. In 1926, he published one more issue of *Wiadomości Konserwatorskie*, paying for the volume with his own funds. A financial catastrophe followed: his flat was auctioned off along with

his furniture and book collection. All that was left to him was an honorary shot in the head...⁵

Jaroslav Pasternak, a talented emigré.

Ukrainian professor, archaeologist and ethnographer (Fig. 9). Born in 1892 in Chyrów as the son of a Unitarian clergyman, he died in Canada in 1961. He was educated in the I Academic Gymnasium in Przemyśl with Ukrainian as the language of instruction. The ten-year-old Pasternak collected a herbarium, caught butterflies and beetles, described spring folk customs, wrote down songs and legends of the folk communities. He had his own small book collection. In 1910, he enrolled at the University of Lviv to attend lectures on archaeology given by Karol Hadaczek. He graduated in 1914.

A breakthrough for Pasternak came in 1912/1913. It is then that he first engaged with the Shevchenko Scientific Society in Lviv and met the metropolitan bishop, Andrij Szeptycki, the head of the Greek-Catholic Church in Poland.



Fig. 9. Photograph of J. Pasternak (from the author's archives).

⁵ Kozłowski 2012; archives of the Polish Academy of Sciences in Warsaw; *Polski Słownik Biograficzny*.



Fig. 10. Uniate church (from the author's archives).

During his student years, Pasternak conducted anthropological fieldwork under the supervision of Prof. Jan Czekanowski and together with Volodymir Hrebieniak (on the Werteba Cave, the population of Żółkwia, recruits). He would go on to publish the results in 1919. His popular texts appeared in the Lviv journal *Dilo*, he gave public lectures, also on ethnographic issues, and carried out surveys in the field. He was deeply influenced by Czekanowski, as well as J. Świącicki, a museologist (Ukrainian National Museum), and an ethnographer, W. Hnatiuk (Secretary of the Society).

In 1912, he donated to the Society his collection and notes from his own research and journeys. He helped Świącicki in his struggle to protect Ukrainian cultural heritage from unlawful export abroad.

The next year, the National Ukrainian Museum was inaugurated in Lviv, including ethnography among its many departments, and Pasternak prepared the illustrations for a guide written by the director. He was hired to carry out an inventory of the collection, donated his small book collection to the Museum, and cooperated on the editing of the 'Instruction for the collaborators of the National Museum'. He also received a written recommendation from Świącicki to help him access and describe a number of historical icons and to collect old manuscripts for the Museum (Fig. 10).

In August 1914, he completed an officer's training course in the Austrian 41st Infantry Regiment and took part in an assault on Russian-occupied Lviv (1915); he was hospitalised for wounds in Józefów, Czechia. In 1916, he fought on the Italian front and was seriously wounded. He was a convalescent in Lviv, then returned to the

front to be seriously wounded again. After treatment, he returned to Lviv, wrote for *Dilo* and *Ukraińskie Słowo* [The Ukrainian Word], and worked at the Museum while applying, unsuccessfully, for discharge from the army. In 1918, Pasternak became a member and Secretary of the Ethnographic Commission of the Shevchenko Scientific Society, got a foothold in the Museum there and renewed his acquaintance with Metropolitan Szeptycki.

Pasternak participated in conventions of Ukrainian museologists (Lviv, Sambor, Lviv), the last of which took place at the Theological Academy alongside an exhibition (1932). Since 1928, he directed the Lviv Museum of the Society (including an ethnographic collection) and became a professor at the Greek-Catholic Bogusławska Academy (1935).

The Ukrainian uprising broke out in the fall of 1918. He fought unsuccessfully in the Ukrainian Galician Army. His 7th Stryj Brigade withdrew from the city and was interned in Czechoslovakia. Pasternak worked as a cultural and educational officer in the internment camps, ran a library, and wrote popular articles for the *Ukraiński Skitatiel* newspaper. In 1922, he enrolled at the Charles University in Prague to study under the supervision of Prof. Lubor Niederle. Three years later, in 1925, he defended his doctoral thesis on the Ruthenian Carpathians in archaeology. At the same time, he attended courses at the Free Ukrainian University in Prague, including Prof. W. Szczerbakiwski's lectures on art history and ethnology, and directed excavations of the Hradčany Hill in Prague.

When the political situation in Poland improved, the young scholar returned to Lviv. Włodzimierz Antoniewicz helped him to validate his diploma at the

University of Warsaw. Pasternak went on to explore, among others, Old Halich, a site in the Kryłoś village (1934–1941), and more than sixty other archaeological sites (from the Neolithic to the early-medieval).

In September 1939, the Soviets occupied Lviv and ukrainised the Jan Kazimierz University there. They made Pasternak a university professor of archaeology who now lectured in Ukrainian. Pasternak organised a Historical Museum. The University was closed after the Germans took over Lviv in 1941 and the Historical Museum was reorganised as a Prehistoric Museum with Pasternak as director. He also worked in the Lviv branch of the Institute of German Labour in the East which, among others, granted permission to evacuate archaeological artefacts from Lviv to Germany.

Afterwards, he left for Germany and subsequently for Canada. After the war, he lectured at the university in Bonn, the Free Ukrainian University in Munich (1946), and the Ukrainian Chair at the University in Rome. In 1961, he published his synthetic *Study on the Archaeology of Ukraine* (789 pages) in Toronto, Canada.⁶

Janina Rosen-Przeworska, a dancing girl.

Habilitated archaeologist, celtologist (Fig. 11). She was born on 27 October 1904 into a Jewish family in Warsaw and died there in 1991. She was taught at home at first, then graduated from the school of Antonina Wawrzecka in Warsaw in 1923. During the Bolshevik War, she was active in a school club helping soldiers on the frontline.

In 1923, she enrolled at the University of Warsaw, Faculty of History of Art, flirting with sinology, then ethnology, and finally archaeology, which she studied under Włodzimierz Antoniewicz. She attended parallel lectures at the Academy of Fine Arts. From 1928 to 1938 she worked as an assistant at the Erazm Majewski Prehistoric Museum and since 1932, in the Prehistoric Archaeology Department of the University. Her doctoral dissertation on 'Celtic artefacts in Polish lands' (*Światowit*, vol. 19, 1946) was written under the supervision of Antoniewicz and defended in 1932.

She was a party girl, writing rhymes for student satirical shows and fancy dress events, advising colleagues on their costumes. Racist excesses in 1936 forced her to leave the University; she wrote popular articles, as well as books for children and teenagers.

From 1940 to 1944, Rosen-Przeworska was active in the resistance movement under the pseudonym 'Janina

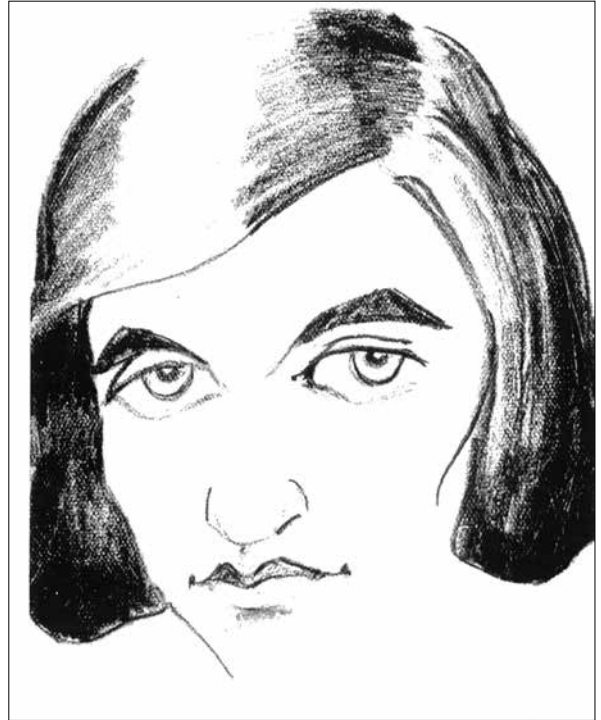


Fig. 11. J. Rosen-Przeworska, self-portrait (from the author's archives).

Jasińska', working as a secretary to Czesław Wycech, the head of clandestine education. She also wrote books: *The origins of human culture* and *The origins of human labour*.

In 1949, she resumed her work for the University of Warsaw and in 1953 was made a deputy professor. She was active in the Organising Committee of the Institute of the History of Material Culture at the Polish Academy of Sciences. In 1959, she was habilitated on the basis of her scholarly achievements.

She was the first Polish celtologist known from the prewar years, the author of more than a hundred publications, including ten popular books: *Celtic traditions in the rituality of the ancient Slavs* (Wrocław 1964), *Religion of the Celts* (Warszawa 1971), *Eastern Celtic iconography* (Wrocław 1976), *The Celtic heritage* (Wrocław 1979).

Passionate about clothing, she wrote about it in *Światowit* vol. 20 ('Social function of clothing') and in *Polska Kultura Ludowa*, covering a timespan from the early Middle Ages to the Renaissance. She never wrote the planned larger study on this subject. Her poorly preserved heritage includes sketched drawings of folk clothing from Poleshye, Czechoslovakia and Sarajevo (Figs 12–13).⁷

⁶ Kozłowski 2012; *Encyklopedia ukrainoznawstwa*, vol. 3. Toronto, 1985–1993; archives of DALO in Lviv.

⁷ Kozłowski 2015; memoirs, manuscript in family hands; archives of the University of Warsaw, Institute of Archaeology and Ethnology, Polish Academy of Sciences in Warsaw.



Fig. 12. J. Rosen-Przeworska, at the Sarajevo market (from the author's archives).



Fig. 13. J. Rosen-Przeworska, at the railway station in Czechoslovakia (1930s) (from the author's archives).

* * *

The opposite was also true: before World War II, a few Polish ethnographers actually studied archaeology as well. Jan Manugiewicz and Janina Krajewska eventually got their diplomas in ethnography, Bożena Stelmachowska, a doctor of archaeology from Poznań,

ultimately received a professorship in ethnography in Toruń and Kazimiera Zawistowicz-Adamska, PhD, later a professor in Łódź, did some archaeological studies in Warsaw. Therefore, it turns out we were brothers and sisters in one faith!

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