SPRAWOZDANIA ARCHEOLOGICZNE 76/1, 2024
PL ISSN 0081-3834
DOI: 10.23858/SA76.2024.1.3672

Kamil Adamczak[1], Magdalena Sudoł-Procyk[2]

MACROLITHIC RETOUCHED BLADES FROM KAŁDUS AND STARE MARZY: FOREIGN TECHNOLOGY AND NEW IDEOLOGY IN THE LITHIC TRADITIONS OF THE TRB COMMUNITIES IN THE LOWER VISTULA REGION

ABSTRACT

Adamczak K. and Sudoł-Procyk M. 2024. Macrolithic retouched blades from Kałdus and Stare Marzy: foreign technology and new ideology in the lithic traditions of the TRB communities in the Lower Vistula region. *Sprawozdania Archeologiczne* 76/1, 405-426.

Over a dozen macrolithic retouched blades or their fragments are known from archaeological sites at Kałdus and Stare Marzy, located in the Lower Vistula region in northern Poland. The context of deposition links these artefacts to the settlements of the younger Funnel Beaker culture, spanning a period of 3650/3500-3300/3100 BC. This article presents and discusses the results of morphological, technological and raw material examinations of the macrolithic retouched blades or their fragments from Kałdus and Stare Marzy and relates them to the lithic industry of the local TRB communities. The results show that the blades were made of high-quality lithic materials sourced from the Polish and Ukrainian Uplands and indicate that their technology is very specific and not rooted in the flintworking traditions of the region. Furthermore, the obtained results suggest that macrolithic retouched blades were charged by the TRB people with a specific function and significance that can be traced beyond the Polish Lowlands.

Keywords: Eneolithic, Funnel Beaker culture, macrolithic blades, Świeciechów flint, Volhynian flint, Jurassic flint

Received: 10.12.2023; Revised: 20.12.2023; Accepted: 20.02.2024

1 Nicolaus Copernicus University in Toruń, Institute of Archaeology, Centre for Applied Archaeology, Szosa Bydgoska 44/48, 87-100 Toruń, Poland; adamczak@umk.pl, ORCID: 0000-0002-8847-5670
2 Nicolaus Copernicus University in Toruń, Institute of Archaeology, Szosa Bydgoska 44/48, 87-100 Toruń, Poland; sudol@umk.pl, ORCID: 0000-0003-4099-5893

INTRODUCTION

Polish archaeology has long recognised macrolithic blades as the products of highly specialised lithic centres of the Polish and Ukrainian Uplands that operated in the vicinity of local flint mines (Balcer 1975; 1983; 2002). They were made on massive retouched blades ranging from a dozen to 250 mm in length and 20-35 mm in width (Balcer 1975, 89) and there is a broad consensus that these objects were made with the use of indirect percussion or the lever pressure technique (Migal 2002; 2006b). Macrolithic blades are relatively rare in the region of the Polish Lowlands and are known from settlement and grave

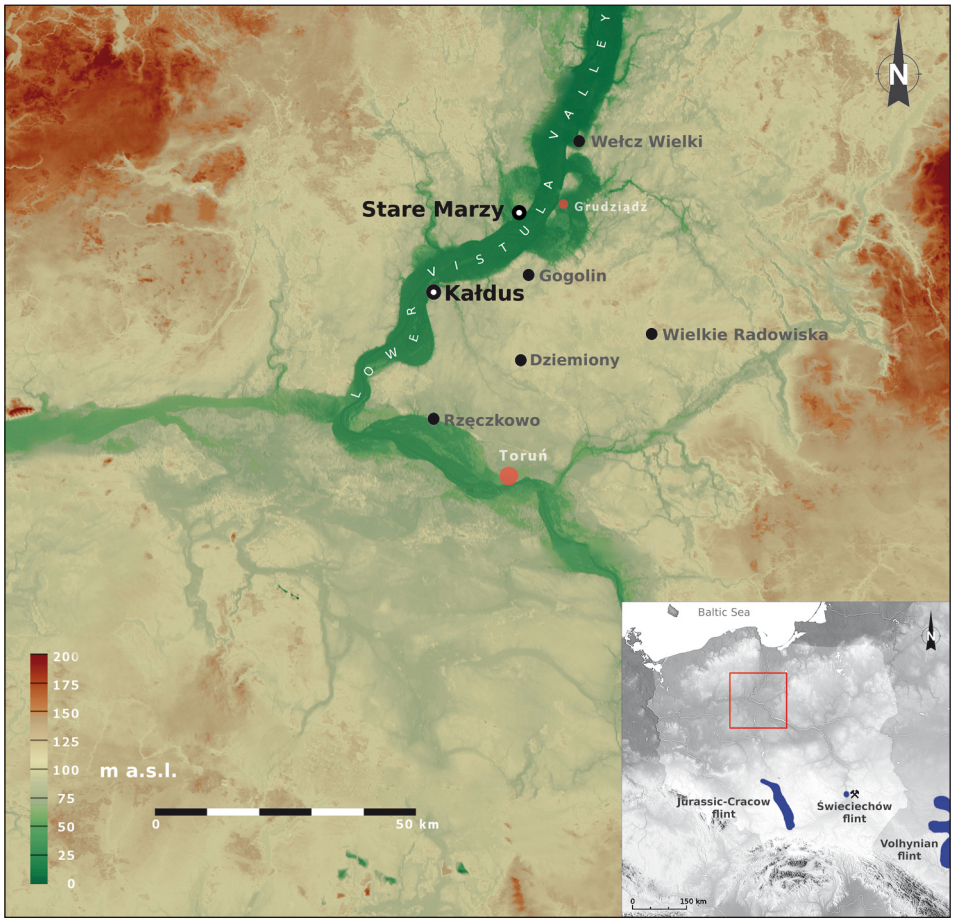

Fig. 1. Map showing the Lower Vistula Valley and the location of archaeological sites at Kałdus and Stare Marzy. The sites from Chełmno land that yielded macrolithic retouched blades or their fragments are also displayed on the map (edited by K. Adamczak; map background: https: //commons.wikimedia.org/wiki/File: Kujawsko-pomorskie_topo.png)

contexts. Lithic studies in this region (Balcer 1981a; 1983; Małecka-Kukawka 1992; 2020; Domańska 1995; 2013; Papiernik 2016; Kabaciński and Sobkowiak-Tabaka 2019) link macrolithic blades and retouched blades to the Funnel Beaker culture (*Trichterbecherkultur*, hereafter TRB) and indicate that these products are imports from remote regions located 300-500 km away from the TRB residences in northern Poland.

While there has been success in providing detailed technological characterisation of macrolithic blades and retouched blades from the Polish Uplands and Lowlands, the issue of significance of these objects has been investigated to greatly varying degrees across these two regions (*e.g.*, Budziszewski 2000; Libera and Zakościelna 2006; Zakościelna 2008; Krzyszowski 2018). There have been attempts to understand macrolithic blades and retouched blades from the Polish Uplands in non-technological terms, for instance, by pointing to a causal link between the appearance of macrolithic tools and the development of the farming economy in Eneolithic Poland (Balcer 1983, 40-43). Attempts have also been made to shed some light on the social and symbolic significance of these artefacts (Budziszewski 2000; Zakościelna 2008). It must however be said that research on macrolithic blades and retouched blades from the Polish Lowlands has not gone much "*(...) beyond the 'industrial' characteristics of lithic material and sweeping generalizations about flintworking*" (Małecka-Kukawka 2009a, 161), meaning that the debate about the significance of macrolithic industry in northern Poland is far from being closed.

In this paper, we therefore present unpublished macrolithic retouched blades from two archaeological sites, Stare Marzy and Kałdus, located in the Lower Vistula region, to determine their morphology, technology and raw material characteristics. The analyses of these objects, aided by the evidence of their use and deposition as postulated by Jolanta Małecka-Kukawka (2009b, 166-168), provide a framework to discuss the significance of retouched blades in the daily life of the TRB Eastern group and help improve our understanding of these objects in the region of Polish Lowlands.

GEOGRAPHICAL AND ARCHAEOLOGICAL SETTING

The Lower Vistula Valley is a geographical macroregion in northern Poland, covering the area of the Vistula Valley between the Toruń-Eberswalde ice-marginal streamway and the Vistula Delta (Kondracki 1978). The region has a length of 120 km and it spread across the Unisław Basin, Świecie-Chełmno Basin and Grudziądz Basin (a width of 8-18 km) as well as narrowings ranging from 3 km to 5 km (Fig. 1). The Lower Vistula Valley has a step-like landform and its ridge is elevated up to several dozen meters above the valley bottom. In its lower course the Vistula is a powerful river and during the Neolithic period it exhibited the features of an anastomosing river and flowed in a wide braided channel with a maximum width of 4 km (Augustowski 1982; Starkel 2001).

The settlement pattern of the Neolithic sites in the Chełmno land – which is part of the Lower Vistula Valley – indicates that the interior of the Vistula Valley was not settled until the colonizing venture of the TRB farmers who spread over large parts of the Lower Vistula Valley and its surroundings, as evidenced by more than one hundred archaeological sites from this area (Kukawka 1991, map 1; Sosnowski 1994, figs 1-5; Kukawka 1997). Five of these sites are known for macrolithic retouched blades and/or their fragments (Gogolin, Kałdus, Stare Marzy, Dziemiony, Wełcz Wielki) (Fig. 1), but only the sites of Stare Marzy and Kałdus have yielded whole macrolithic retouched blades and/or a significant number of their fragments.

STARE MARZY (SITE 5), ŚWIECIE DISTRICT

The site lies on sandy sediments deposited on a kame terrace, 20 m above the flood plain of the Vistula River in the Grudziądz Basin (Chudziak 2002) (Fig. 1). The site was discovered in 1995 and excavated in 1999 during rescue excavations in conjunction with A1 motorway construction works run by the Institute of Archaeology and Ethnology of the Nicolaus Copernicus University (NCU) in Toruń (presently: the Institute of Archaeology). The excavations covered an area of 5,700 m^2 and revealed evidence for settlement activity at the site during an extended timescale spanning the Palaeolithic to the early modern period, including a campsite of the Swiderian culture, a campsite of the Chojnice-Pieńki culture, traces of an LBK settlement, settlements of the TRB and the Globular Amphora cultures, a campsite from the Late Neolithic, a settlement from the Early Bronze Age, a cemetery and a settlement of the Lusatian culture, a settlement of the Pomeranian culture, settlement traces dating to the Wielbark culture, as well as the Early and Late Middle Age and early modern period.

About 2,500 flint artefacts were recovered from the site, most of which date to the Palaeolithic and Mesolithic period. The lithic material was yielded by ten flint scatters ("kshemenitsas") (Cyrek 2002; Cyrek and Sudoł 2009) and cultural layers, and only a few flint artefacts come from pits dating to the Early Iron Age (Słupczewski 2003, tab. 2). There are eight whole retouched blades or their fragments in the assemblage. They were found with no associated material or structures and with no specific spatial distribution, which seems to indicate that they were recovered from a secondary context. However, the retouched blades or their fragments from Stare Marzy can be safely linked by their raw material, morphology and technology as well as lithic traditions of the region to the TRB culture; there was no other material from the site with attributes diagnostic for the TRB flintworking. The TRB residence at the site can be dated by the typology of the ceramics (494 potsherds) to the late Wiórek phase (Słupczewski 2003, 230, 231), which corresponds with the phases IIIB-C and IIIC TRB in Kuyavia (Kośko 1981) and the phase IIIC in the Chełmno land (Kukawka 1991).

THE SITE COMPLEX IN KAŁDUS, CHEŁMNO DISTRICT

The site complex at Kałdus is located on the ridge of the morainic plateau, on the edge of the Lower Vistula Valley, between the Świecie-Chełmno Basin and the Unisław Basin (Fig. 1). Four distinct sites (1-4) are arbitrarily distinguished in Kałdus, covering an area of about 15 ha. The site was first excavated in the 19th century (Chudziak 2003, and refs.) and in 1996, an interdisciplinary research program was started at the site, run by the Institute of Archaeology, NCU in Toruń and covering the entire site complex (Chudziak 2003; Chudziak 2004).

The earliest occupation level recorded in Kałdus can be dated to the Neolithic period and linked to the TRB culture. A few ceramic finds from the site are related to the Linear Pottery culture, the Globular Amphora culture and the Late Neolithic, whereas the younger cultural strata recorded in Kałdus belong to an Early Bronze Age cemetery of the Iwno culture, which was followed by intense settlement activity of the Lusatian and Pomeranian cultures. A few artefacts date to the Roman period. The next layer can be assigned to the Early Middle Ages, when the site of Kałdus became a political centre for the first rulers of Piast Poland (one of the *sedes regni principalis*) and was organised as a stronghold with backup facilities and cemeteries (Chudziak 2003; Bojarski *et al.* 2006). The archaeological record also indicates human activity at the site in the Late Middle Ages and early modern period.

The TRB habitation has been exposed in Kałdus over the entire area of the site, evidenced by numerous domestic and ritual pits, metal hoards and cremation graves (Kaszewski 1979; Adamczak *et al.* 2015; 2021; Kowalski *et al.* 2019; 2020), rendering it one of the largest TRB site in the region, which could operate as a major central-place settlement for the local Eneolithic communities. The available archaeological evidence links the TRB occupation at the site to the classical and late Wiórek phases (Kaszewski 1979; Adamczak *et al.* 2015; Kowalski *et al.* 2020), which corresponds with the younger stages of the TRB in the Chełmno land (Kukawka 2010, fig. 9). The TRB material from the site has not yet been fully analysed and presented, including the flint artefacts.

MATERIAL AND METHODS

Fourteen retouched blades or their fragments were selected for this project (Table 1). Six specimens are from the Kałdus site: four of them were found in cultural layers, while two other artefacts are reported from archaeological features. The largest retouched blade from Kałdus was found in a ritual pit (no. 1186, Site 2), accompanied by a metal hoard, amber, clay and bone artefacts, potsherds and two flint arrowheads (Adamczak *et al.* 2015). There is also an overheated, distal fragment of a retouched blade, which was yielded by a pit (no. 255, Site 4) with burnt bones that can be interpreted as a cremation grave; the

Table 1. Morphological characteristics of retouched blades from Kałdus and Stare Marzy

Id	State of preservation				Lateral edges		Traits of the dorsal surface			Butt			Retouch					Dimensions lenght x widht x thickness	Raw material			Comments				Fig.
		fragment																							
	Fully preserved	Distal	Mesial	Proximal	Regular	Irregular	Regular ridges	Irregular ridges	Cortex	*Lisse*/Plain	Prepared	In the type of en epperon	On one edge	On both edges	Endscraper front	Regular	Denticulated		Świeciechów flint	Creataceous, Volhynian	Jurassic-Cracow	Partly crested blade	Destruction of tip	Polish on edge	Charring	
Kałdus, site 1-4																										
1	x				x		x				x			x	x	x		149 x 29 x 9	x							2:1
2		x			x		x							x	x	x		(39)* x 18 x 4	x							2:2
3				x		x	x				x	x		x			x	(52)* x 30 x 5***	x							3:3
4		x			x		x										x	(49)* x 25 x 6	x				x		x	4:4
5	x				x		x				x			x				100 x 51 x **	x						x	4:5
6			x		x		x							x			x	(27)* x 24 x 4		x				x		5:2
Stare Marzy, site 5																										
7	x				x			x			x	x		x		x		136 x 37 x 12	x			x				3:1
8			x		x		x						x				x	(34) * x 30 x 9	x			x				3:2
9	x				x		x				x			x		x		127 x 31 x 9	x							4:1
10		x			x		x		x					x			x	(59) * x 25 x 7	x				x			4:2
11		x					x		x					x			x	(26)* x 20 x 7	x							4:3
12	x				x		x			x				x		x		142 x 33 x 9			x					5:1
13		x			x		x							x			x	(80)* x 27 x 8		x						6:1
14			x		x		x		x				x				x	(63)* x 31 x 7		x						6:2

* length of preserved fragment of a blade; ** blade is missing; morphometric description based on the analysis of a photo of the dorsal face of the artefact; determination of thickness is impossible; *** blade-flake blank revealing traits similar to blades discussed in the paper

pit contained also potsherds and four fragments of an overheated retouched blade. The archaeological site of Stare Marzy produced eight retouched blades that were recovered from cultural layers.

Technological analysis of flint artefacts broadly follows the procedure by Bogdan Balcer (1975; 2002), which involves examining morphological data of blades (surfaces and butts) for relevant information about specific techniques used for the preparation and exploitation of cores.

RESULTS OF TECHNOLOGICAL AND RAW MATERIAL ANALYSIS

Five specimens preserved in complete form, there are also five distal and three mesial fragments. The analysed assemblage includes also one proximal fragment (Fig. 2: 3), which is similar to the blade-flake forms, but shows specific characteristics of the proximal (butt and bulb) part. The artefacts are made from three different types of siliceous rocks: the predominant Świeciechów and Volhynian flint, followed by the Jurassic flint raw material (Table 1). The fully preserved blades and their larger fragments were made from the so-called intentional blades. The analysed artefacts reveal technological traces indicating the use of the pressure technique with a special toolkit: the regularity of the lateral edges and dorsal ridges, the very similar thickness of the products, the maximum width in the proximal part of the blade, the presence of small, repeatable bulbs and a striking angle close to 90 degrees (Clark 2012; Inizan *et al.* 1999, 77; Pelegrin 2006; Pyżewicz 2013, 235-238). The technique of obtaining of macrolithic blades is not completely understood. Likewise, it is difficult to specify the tools or devices used for the production of macrolithic blades and their identification may be hampered when tools produced using a punch are present in the lithic assemblage (Budziszewski and Grużdź 2013; Migal 2006a). However, it seems likely that the small butts of intentional blades known from the TRB flint inventories confirm the use of the pressure technique. This group of blades contains cortical specimens and technical forms of partly-crested blades type with straight side edges and scar ridges as well (Balcer 2002).

The analysis of butts was possible for six artefacts (Table 1). Five specimens from Kałdus and Stare Marzy were made of Świeciechów flint and have butts prepared in a manner typical of the TRB flintworking (Balcer 2002) and indicates that the blades were detached from cores with extensively prepared striking platforms. Butts were carefully formed before detachment of blades, facetted and trimmed by removing micro-flakes and micro-blades. Butts are narrow, the bulbs are not very prominent, whereas the distal parts of the blades are arched and pointed. A single blade from Stare Marzy, made of banded Jurassic-Cracow flint, is noticeable for having a *lisse*/plain butt, which was detached from a core with a plain striking platform, as can be seen in Fig 5: 1.

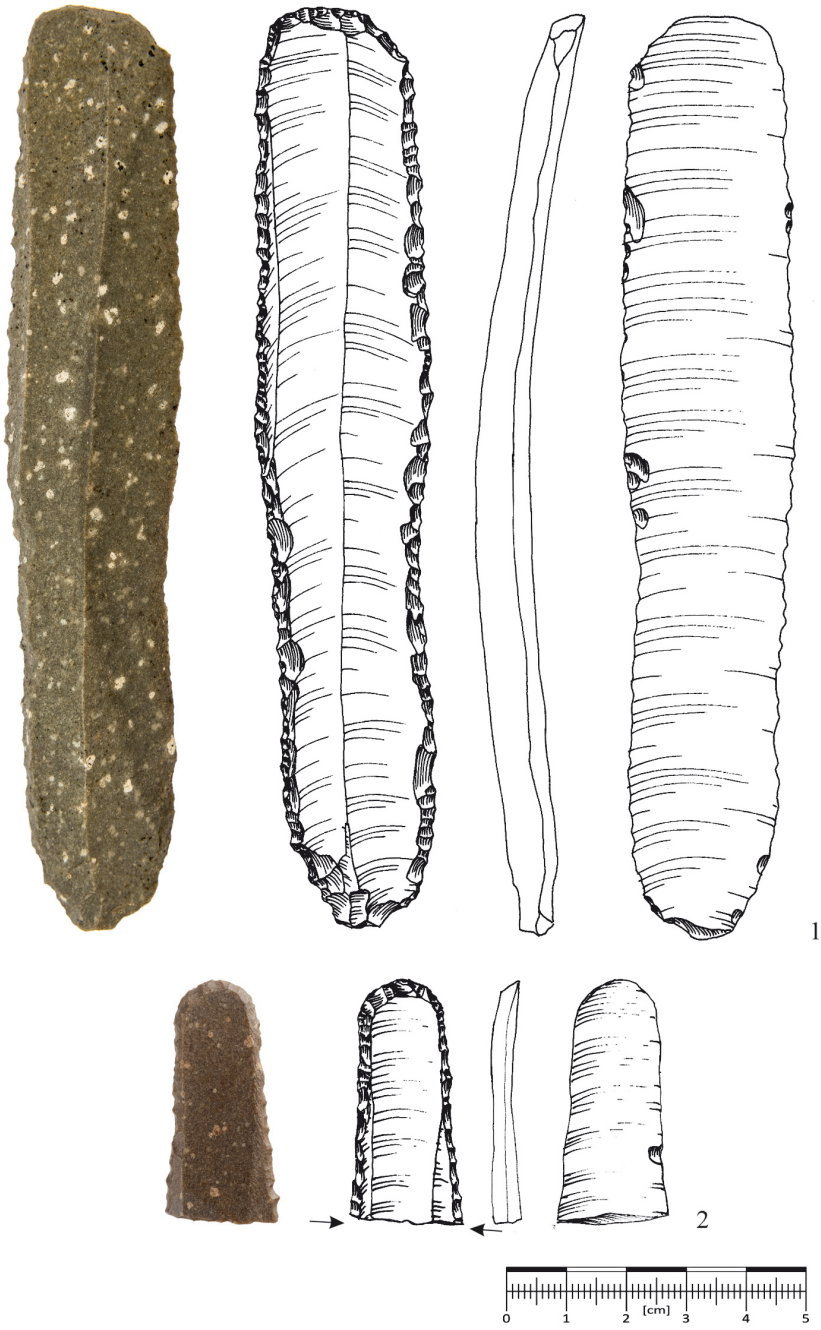

Fig. 2. Retouched blade from Kałdus (1) and its distal fragment with retouched edges and a tip of endscraper type (2) (drawings by M. Sudoł-Procyk; photographs by W. Ochotny)

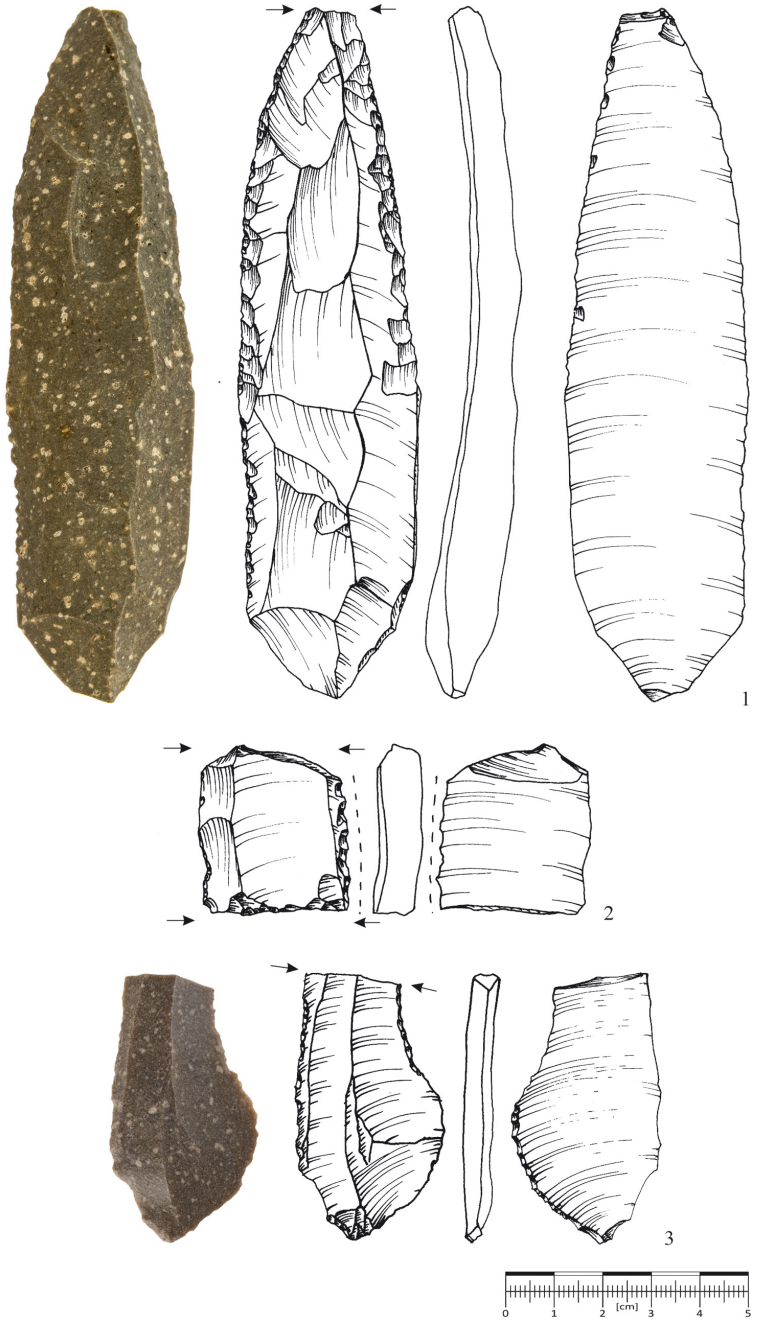

Fig. 3. Retouched blade and fragments of retouched blades from Stare Marzy (1-2) and Kałdus (3) (drawings by M. Sudoł-Procyk; photographs by W. Ochotny)

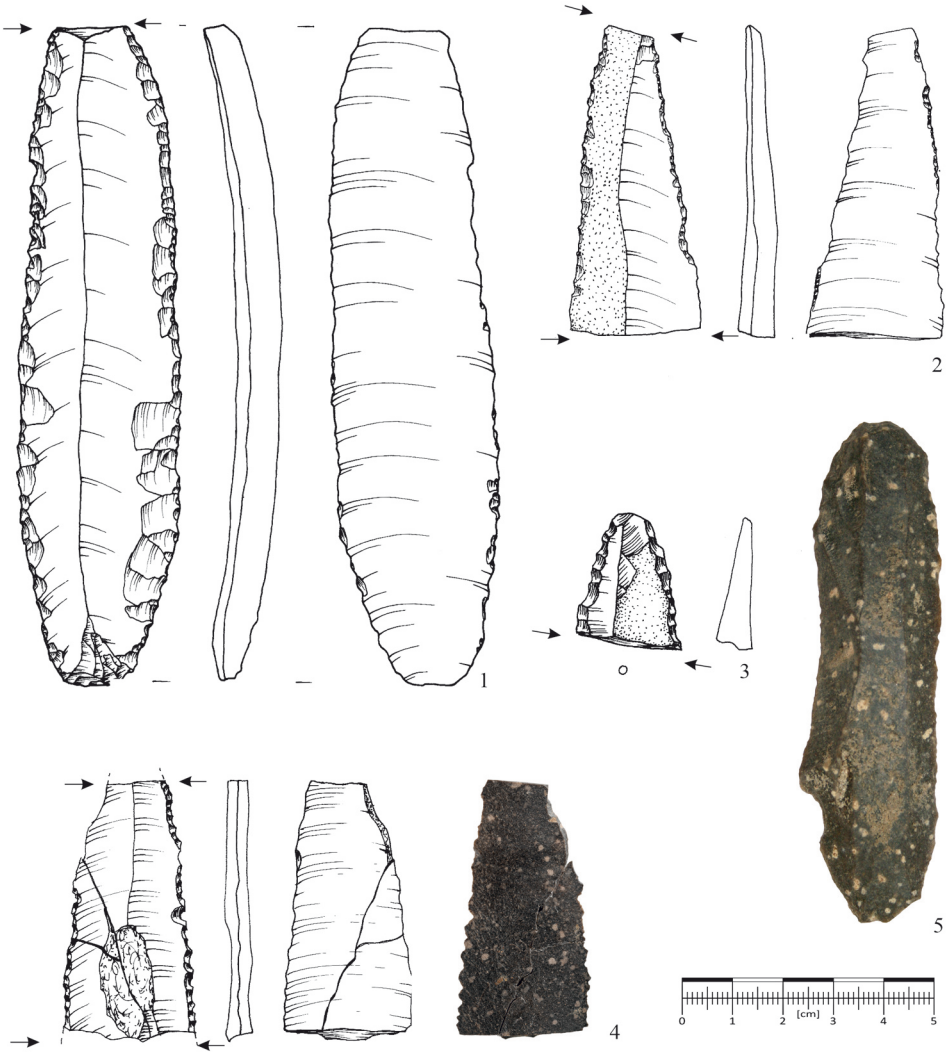

Fig. 4. Retouched blade and fragments of retouched blades from Stare Marzy (1-3) and Kałdus (4-5) (drawings by M. Sudoł-Procyk; photographs by W. Ochotny)

In general, the side edges of the blades are straight and parallel, converging towards their tips, which is typical of intentional blades (Balcer 2002). Only three blade fragments are partially cortical: two of them preserved in distal parts (Figs 3: 2 and 3: 3) and one is a mesial fragment (Fig. 6: 2). All of the blades and their fragments have straight side edges and ridges between scars of previously detached blades, which allowed us to label two additional partly-crested blades as retouched blades (Figs 3: 1 and 3: 2).

Fig. 5. Retouched blade and a fragment of retouched blade from Stare Marzy (1) and Kałdus (2) (drawings by M. Sudoł-Procyk; photographs by W. Ochotny)

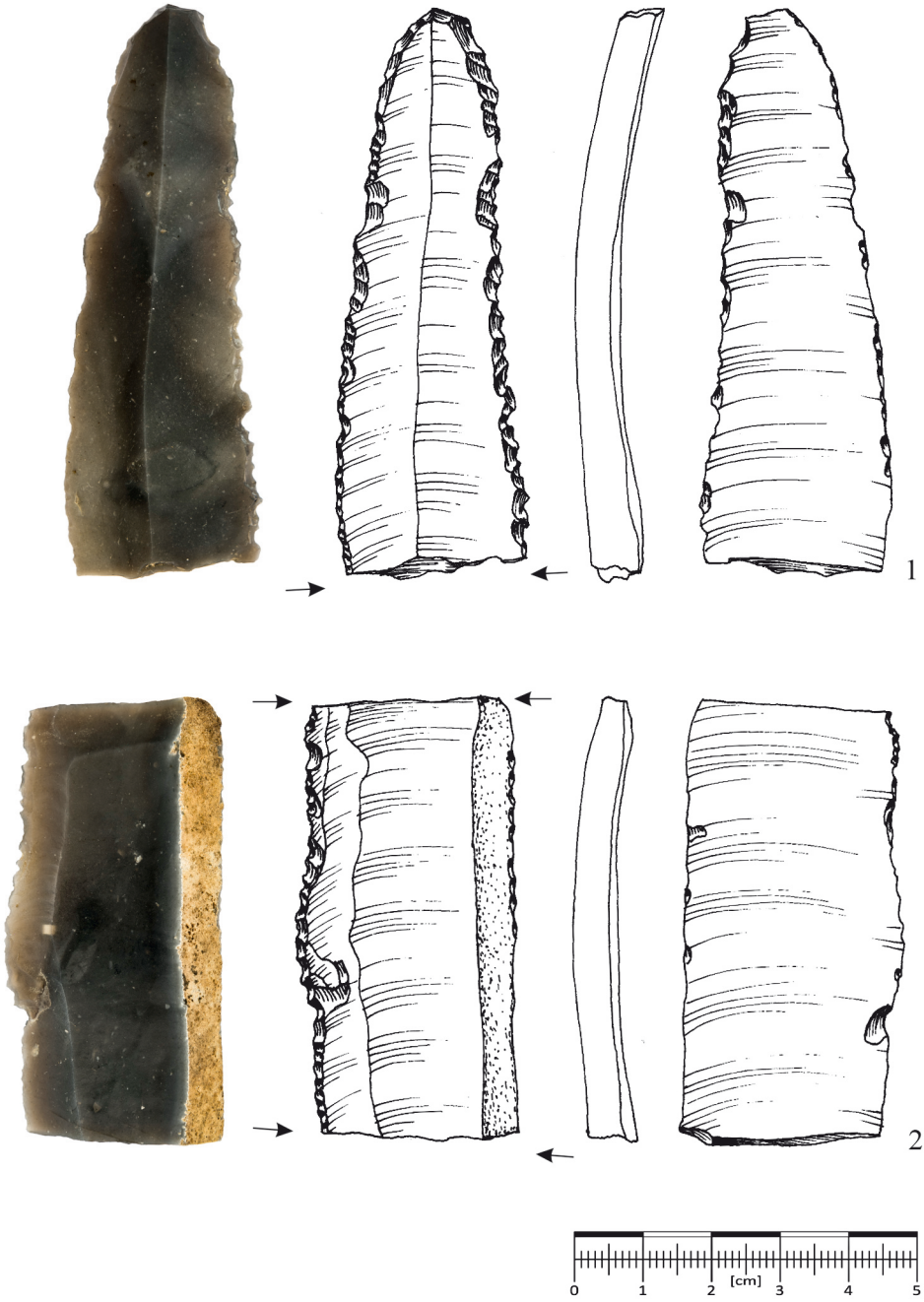

Fig. 6. Fragments of retouched blades from Stare Marzy (1, 2)
(drawings by M. Sudoł-Procyk; photographs by W. Ochotny)

The fully preserved blades from Kałdus and Stare Marzy have the following dimensions: length 100-149 mm, width 29-51 mm, thickness 9-12 mm, which allows us to classify them as macrolithic blades (Balcer 1975, 89; 2002). The remaining fragmented nine blades correspond well in terms of proportions with the fully preserved blades, making it possible to identify the specimens from Kałdus and Stare Marzy as fragments of macrolithic blades. The high number of blade fragments in the assemblage can be explained by the fact that macrolithic blades were more susceptible to damage than short blades (*e.g.*, Balcer 2002).

The analysed blades and their fragments have retouched edges and some of them display use-wear traces (Table 1). Examinations identified the presence of different types of retouch. Aside from continuous regular, semi-step, rarely flat and semi-step retouch, a denticulated retouch was distinguished, which occurred mainly on blade fragments with edges retouched continuously or partially (Figs 3: 2; 4: 4; 5: 2; 6: 1, 2). On Figs 2: 1 and 2: 2 it is clearly visible that the two blades have regular, semi-step retouch covering both edges and the edge of a fracture, which could potentially be taken as evidence for identifying them as endscrapers. The "endscraper front" of these specimens was formed by retouching the edge of a fracture that resulted from the removal of a bending or too thin tip. These technological dealings are evidenced by the preserved tip parts of blades from Kałdus and Stare Marzy. Retouched blades with "endscraper-like" tips are known from the TRB period in Poland, for example at the site of Ćmielów (Balcer 2002). However, typical TRB endscrapers have more massive and specialised endscraper fronts and are usually shorter than retouched blades, suggesting that the specimens shown in Figs 2: 1 and 2: 2 may have been multi-purpose tools used for cutting and scraping (with the edges) as well as scraping, piercing and engraving (with the tips) (Balcer 2002, 69).

MACROLITHIC RETOUCHED BLADES IN THE TRB EASTERN GROUP: CHRONOLOGY, FUNCTION AND SIGNIFICANCE

The appearance of macrolithic blades and flint axes mark the later stage of the TRB flintworking in Poland, which is often summed up as the "metric change". Bogdan Balcer (1983, 122) refers to this period as the "Eneolithic stage" of the TRB Eastern group lithic industry and dates it to the classical and late Wiórek phases and the Luboń phase. This time span for retouched blades seems to resonate well with the macrolithic industry of the Polish Lowlands. Macrolithic blades from this region are chiefly known from the monumental tombs and other types of TRB graves dating to the Wiórek phase (Młynarczyk 1982; Papiernik 2016, 732, fig. 591). The retouched blades in this region are also evident at the TRB settlements of the classical and late Wiórek phases, for example at the sites of Annopol in the Gostyń Lake district or Zarębowo in Kuyavia (Balcer 1983, 157; Papiernik and

Rybicka 2001). There is virtually nothing in the lithic record from Poland to elucidate the nature of TRB flintworking during the Luboń phase and there is no single example of retouched blade that can be linked to the later stage of the TRB Eastern group.

To sum up, the emergence of macrolithic blades to the TRB people of northern Poland dates back to 3700/3600-3100/2800 BC (Kukawka 2010). However, this extended time span can be narrowed by the radiocarbon dates obtained for the settlements of the TRB South-Eastern group that operated as specialised production centres of macrolithic blades made of local Świeciechów flint. The sites "Pieczyska" in Zawichost and the "Gawroniec" hill in Ćmielów can be mentioned here (Balcer 1975; 2002). Modelling of radiocarbon dates from Ćmielów indicates a relatively short time period of 3650-3350 calBC (Balcer 2002; Włodarczak 2006, 39, fig. 10) and broadly similar date with a 2σ range of 3620-3350 calBC comes for the ritual pit (no. 1186) from Kałdus, which yielded the retouched blade made of Świeciechów flint (Kowalski *et al.* 2019, tab. 1, 5) (Fig. 2: 1).

The TRB sites of the Polish Lowlands are usually known for single finds of macrolithic blades, only rarely does their number exceed five specimens, as evidenced by the Volhynian flint deposits from the settlements of Byczyna in Kuyavia and Rożental in the Starogard Lake district (Balcer 1983, 157; Felczak 2020, 163, fig. 63; Małecka-Kukawka 2020, 255, figs 11-13). In this context, the deposit from Stare Marzy is exceptional and invites further discussion. There are no cores and/or their fragments in the geohistorical range of the TRB Eastern group that could have been used for the local production of macrolithic blades. The only exception is a core made of Volhynian flint, which was found by accident at the Starogród site, near Kałdus. There are, however, strong archaeological and technological indications suggesting that the Starogród core was transported to the Lower Vistula Valley region as a ready product and had never been exploited by the local TRB people (Adamczak *et al.* 2019, 185, figs 3, 4). Macrolithic blades and retouched blades in the Polish Lowlands are made of non-local lithic raw material, mostly of Świeciechów flint, and they stand in sharp contrast to the local flint traditions of the TRB Eastern group in the Polish Lowlands. Many prehistorians now agree that retouched blades are entirely the products of highly specialised lithic centres that operated near outcrops of fine siliceous raw materials, for instance at the "Gawroniec" site in Ćmielów (Balcer 2002, and refs.). Therefore, it is reasonable to assume that the TRB people of the Polish Lowlands were unfamiliar with macrolithic blade technology (pressure technique, preparation of single platform cores) and did not attempt to produce retouched blades using either local or non-local flint material, as may be evidenced by the core from Starogród. It is interesting to see this technological disconnection between the Polish Uplands and Lowlands in relation to the contemporary flint axe industry, which widely exploited the erratic flint of much lower quality and saturated these two TRB regions with many examples of flint axes in the second half of 4th millennium BC (Balcer 1981a).

There are basically two different approaches to understanding the possible significance of retouched blades for the TRB people, although they are not mutually exclusive. The first

is focused on economic activities in the Neolithic period and emphasizes the "*(...) rational use of blades, first, as harvesting tools and then, after some technological modifications, as other functional tools*" (Balcer 1981b, 82). Use-wear traces identified on a few retouched blades from the Polish Lowlands support this opinion (Papiernik 2016, 706, tab. 23; Krzyszowski 2018; Winiarska-Kabacińska 2018; the blades from Kałdus and Stare Marzy have not yet been examined for use-wear traces). Studies of lithic assemblages indicate that retouched blades were intentionally fragmented and used to the fullest extent possible, which is a commonplace among the whole regional TRB ecumene of the Eastern group, for instance, at the younger TRB settlements from the Chełmno land: Gogolin, Wełcz Wielki and Rzęczkowo (Małecka-Kukawka 1992, 88, 98, 99, tab. 36, figs 12: 11, 12; 16: 2; 20: 1, 2). Similar evidence of retouched blades fragmentation comes from the sites of Stare Marzy and Kałdus. Furthermore, there are good grounds to assume that after fragmentation, the significance and valorisation of the macrolithic blades was changed: they were still a reservoir of high-quality starting material for effective domestic tools, but at the same time they may have been socially and ritually depleted – and this may be the reason why whole blades, rather than their fragments, are found in the grave and deposit contexts.

Janusz Budziszewski (2000, 276-278), on the other hand, touches upon the socio-cultural and symbolic issues related to the production and use of macrolithic blades. Accordingly, macrolithic blades could have been charged with a socially negotiated meaning and function, and served the Eneolithic communities to mark the high social rank of an individual or group. This pattern of use can be traced to the Tisza River region and eastern Balkans (*e.g.*, Bognár-Kutzián 1972; Lichardus-Itten 1981; Gurova 2013). Furthermore, the widespread and long-distance exchange network of macrolithic blades, which were made of specific and selected raw materials, can be taken as evidence of the increased inter-group and inter-tribal communication and signifies the social agency of these objects (*cf.*, Włodarczak 2006, 58; Małecka-Kukawka 1994). In this regard, Janusz Budziszewski (2000, 278) is right to say that non-economic role of retouched blades can be seen in deposits and votive hoards of the TRB South-Eastern group, which contain whole macrolithic blades that were placed in water reservoirs and graves. This statement was reasserted by Jerzy Libera (*et al.* 2019, and refs.). Also worth exploring is the question of the significance of retouched blades in the funerary realm of the Lublin-Volhynian culture, which preceded the TRB culture in south-eastern Poland (Zakościelna 1994; 2010). Archaeological data indicate that in the later Lublin-Volhynian culture, inhumation burials of adult males were equipped with the most impressive flint retouched blades-daggers that were placed near crucial parts of bodies, such as the chest or head. So, it can be reasonably posited that retouched blades were used in the Lublin-Volhynian culture to signal the high social rank of the buried male in the local community as a warrior-hunter (Zakościelna 2008; Zakościelna *et al.* 2023). It seems very likely that similar understanding of macrolithic blades was adopted in the TRB South-Eastern group in Lesser Poland. To set this argument into context, one should pay attention to the TRB megalithic tombs and graves that yielded a signifi-

cant amount of retouched blades, which is particularly well attested in the Lublin region (Libera and Zakościelna 2006). Furthering this argument, we can assume that the TRB people of the Polish Uplands included retouched blades in their ritual *via* aquatic deposits (Kadrow 1989; Libera *et al.* 2019, and refs.) and funerary activities (Libera and Zakościelna 2006). We now know that these ideas found their way to the TRB ecumene in the Polish Lowlands, where they were echoed by human graves equipped with macrolithic retouched blades made of raw material sourced in the southern Poland and western Ukraine (*e.g.*, Młynarczyk 1982), as well as macrolithic retouched blades that were deposited in local settlements (*e.g.*, Balcer 1983).

POSSIBLE SIGNIFICANCE OF THE RETOUCHED BLADES FROM STARE MARZY AND KAŁDUS

Starting from 3650/3500 BC we can observe how macrolithic blades and retouched blades appeared in the TRB Eastern group and how they were used in ritual, funerary and domestic activities in the region. Good examples of this process can be found at the site of Kałdus, where a tip of an overheated retouched blade-dagger was found in a cremation grave. The same site yielded a pit containing a massive retouched blade made of Świeciechów flint, accompanied by other luxury goods originating from remote regions, including metal weaponry and ornaments, an amber disc and other archaeological finds that indicate the ritual function of the pit. Intentionally fragmented retouched blades from Kałdus can also furnish proof for valorisation of macrolithic blades in the region by showing their domestic and economic use. The apparent accumulation of Świeciechów retouched blades in Kałdus need not come as a surprise. It can be understood through the exceptional status of Kałdus in the cultural landscape of the region (Adamczak *et al.* 2015), which arguably operated as the major TRB central-place and persisted for many generations of local Neolithic farmers. A further example comes from the site of Stare Marzy, which yielded eight retouched blades and their fragments, made of three different lithic materials, rendering it an exceptional assemblage of macrolithic blades in the Polish Lowlands. The topography of the site at Stare Marzy is important to better understand the choice of this place for the deposition of macrolithic blades. The site is located on a tongue-shaped kame terrace cutting into the flood plain of the Vistula River, which may have been a convenient spot in the local TRB landscape (Fig. 1) and was most likely an important communication node of the Lower Vistula Valley (Adamczak 2011, 377). In this context, the deposition of macrolithic blades in Stare Marzy took place at the crossing over the Vistula River, where important communication routes connecting Grupa/Stare Marzy and Grudziądz intersected in the Neolithic (see Fig. 1). Evidence for a similar choice of location for deposits of non-local lithic tools comes from several TRB sites near Toruń (Małecka-Kukawka 1992, 101). Secondly, the retouched blades from Stare Marzy can be material evidence of denoting actions of the TRB

people taking place in special topographical zones with landform obstacles. Archaeological data from Neolithic Poland seems to confirm this pattern. Examples that fit this pattern well include the copper object(s) from Antoniny (Kowalski *et al.* 2016, 197) that were deposited near the Noteć River crossing on the border of Pomerania and Greater Poland region, and copper artefacts from Przysiecz in Silesia (Adamczak *et al.* 2022, 75), which were found near the Prószkowski Potok River.

FINAL REMARKS

The results presented in this study show that macrolithic retouched blades made their appearance in the Lower Vistula Valley—and throughout the Polish Lowlands region – between 3650/3500 and 3300/3100 BC. They emerged as products of highly specialised lithic centres of the Polish and Ukrainian Uplands that operated in the vicinity of local flint mines. At the same time, there is no evidence to suggest that the flintworkers of Polish Lowlands did attempt to produce macrolithic blades using available local flint outcrops, indicating that local lithic industry in the region of northern Poland missed the "know-how" of macrolithic blade production. Taken together, the retouched blades were technological outliers *vis-à-vis* the flint industry in the Polish Lowlands and we have reasons to believe that they were charged with socially negotiated meanings and functions. Evidence also exists that macrolithic blades were a reservoir of high-quality starting material for effective domestic tools. Furthering this argument, we can see the retouched blades as symbol of action that contained both the attributes of a specialised lithic tool as well as prestigious objects with socio-cultural agency. This seems to hold the key to understanding the special status of macrolithic blades in the TRB Eastern group, which is well reflected by the context and content of the retouched blade deposits from Kałdus and Stare Marzy.

Acknowledgements

We are very grateful to Prof. Wojciech Chudziak, Dr. hab. Jacek Bojarski, Dr. Marcin Weinkauf and Dr. Ryszard Kaźmierczak from the Department of the Antiquity and Middle Ages at the Institute of Archaeology NCU in Toruń, who have let us investigate flint material from the Kałdus site complex. We acknowledge the detailed comments and constructive suggestions by the two anonymous reviewers that helped to improve this work.

References

Adamczak K. 2011. *Neolit i wczesne okresy epoki brązu w południowo-wschodniej części Kotliny Toruńskiej*. Toruń, Warszawa: Instytut Archeologii UMK (typescript draft of the PhD thesis in Archive of Institute of Archaeology NCU).

Adamczak K., Kowalski Ł., Bojarski J., Weinkauf M., and Garbacz-Klempka A. 2015. Eneolithic metal objects hoard from Kałdus, Chełmno commune, kujawsko-pomorskie voivodeship. *Sprawozdania Archeologiczne* 67, 199-219.

Adamczak K., Kowalski Ł., Urbanová P., Douka K., Brown S., Kowalski A.P., Kukawka S., Wilczyński J., Szczepańska G. and Zawilski P. 2021. New evidence for deer valorisation by the TRB farmers from Poland using ZooMS and micro-CT scanning. *Journal of Archaeological Science: Reports* 40, 103230 (doi: 10.1016/j.jasrep.2021.103230).

Adamczak K., Kukawka S. and Małecka-Kukawka J. 2019. *„Importowane" surowce krzemienne w młodszych fazach grupy wschodniej kultury pucharów lejkowatych*. In M. Szmyt, P. Chachlikowski, J. Czebreszuk, M. Ignaczak and P. Makarowicz (eds), *Vir Bimaris. Od kujawskiego matecznika do stepów nadczarnomorskich. Studia z dziejów międzymorza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Kośko* (= *Archaeologia Bimaris. Dyskusje* 5). Poznań: UAM w Poznaniu, Instytut Archeologii, Zakład Prahistorii Europy Środkowo-Wschodniej, 175-189.

Adamczak K., Badura B., Garbacz-Klepka A, Kowalski Ł., Perek-Nowak M. and Kozana J. 2022. Nowe spojrzenie na zabytki miedziane z Przysieczy, gm. Prószków. *Rocznik Muzeum Górnośląskiego w Bytomiu* 23, 49-84.

Augustowski B. (ed.) 1982. *Dolina Dolnej Wisły*. Wrocław, Warszawa, Kraków, Gdańsk, Łódź: Zakład Narodowy im. Ossolińskich, PAN.

Balcer B. 1975. *Krzemień świeciechowski w kulturze pucharów lejkowatych. Eksploatacja, obróbka i rozprzestrzenienie*. Wrocław, Warszawa, Kraków, Gdańsk: Zakład Narodowy im. Ossolińskich, PAN.

Balcer B. 1981a. Wyniki badań nad krzemieniarstwem kultury pucharów lejkowatych na ziemiach Polski. In T. Wiślański (ed.), *Kultura pucharów lejkowatych w Polsce*. Poznań: PAN, Oddz. w Poznaniu, Leszczyńskie Towarzystwo Kulturalne w Lesznie, 59-79.

Balcer B. 1981b. Związki między kulturą pucharów lejkowatych (KPL) a kulturą trypolską (KT) na podstawie materiałów krzemiennych. In T. Wiślański (ed.), *Kultura pucharów lejkowatych w Polsce*. Poznań: PAN, Oddz. w Poznaniu, Leszczyńskie Towarzystwo Kulturalne w Lesznie, 81-91.

Balcer B. 1983. *Wytwórczość narzędzi krzemiennych w neolicie ziem Polski*. Wrocław, Warszawa, Kraków, Gdańsk, Łódź: Zakład Narodowy Im. Ossolińskich Wydawnictwo PAN.

Balcer B. 2002. *Ćmielów-Krzemionki-Świeciechów. Związki osady neolitycznej z kopalniami krzemienia*. Warszawa: Instytut Archeologii i Etnologii PAN.

Bognár-Kutzián I. 1972. *The Early Copper Age Tiszapolgár Culture in the Carpathian Basin* (= *Archaeologia Hungarica. Series Nova* 48). Budapest: Akadémiai Kiadó.

Bojarski J., Chudziak W. and Weinkauf M. 2006. Z badań nad wczesnośredniowiecznym zespołem osadniczym w Kałdusie na Pomorzu Nadwiślańskim (lata 2000-2003). In W. Chudziak and S. Moździoch (eds.), *Stan i potrzeby badań nad wczesnym średniowieczem w Polsce – 15 lat później*. Toruń, Wrocław, Warszawa: Wydawnictwo Naukowe UMK, 369-382.

Budziszewski J. 2000. Flint Working of the South-Eastern Group of the Funnel Beaker Culture: Exemplary Reception of Chalcolithic Socio-Economic Patterns of the Pontic Zone. *Baltic-Pontic Studies* 9, 256-281.

Budziszewski J. and Grużdź W. 2013. O technikach i metodach krzemieniarskich. In M. M. Przybyła, A. Szczepanek and P. Włodarczak (eds.), *Koszyce, stanowisko 3. Przemoc i rytuał u schyłku neolitu*. Kraków, Pękowice: Stowarzyszenie Archeologów Terenowych „Starter", Wydawnictwo i Pracownia Archeologiczna Profil-Archeo, 161-178.

Chudziak W. 2002. Wyniki prac terenowych. In *Opracowanie wyników ratowniczych badań archeologicznych przeprowadzonych na odcinku A1 planowanej autostrady w woj. kujawsko-pomorskim (b. woj. bydgoskie). Tom 6-b. Stare Marzy, gm. Dragacz, stanowisko 5.* Toruń (typescript in Archive of Institute of Archaeology NCU), 19-22.

Chudziak W. 2003. *Wczesnośredniowieczna przestrzeń sakralna in Culmine na Pomorzu Nadwiślańskim* (= *Mons Sancti Laurentii* 1). Toruń: Wydawnictwo Naukowe UMK w Toruniu.

Chudziak W. 2004 (ed.) W*czesnośredniowieczny zespół osadniczy w Kałdusie. Studia przyrodniczo-archeologiczne* (= *Mons Sancti Laurentii* 2). Toruń: Wydawnictwo Naukowe UMK w Toruniu.

Clark J. E. 2012. Stoneworkers' Approaches to Replicating Prismatic Blades. In P. M. Desrosiers (ed.), *The Emergence of Pressure Blade Making. From Origin to Modern Experimentation*. New York: Springer, 43-135.

Cyrek K. 2002. Paleolit schyłkowy i mezolit. In *Opracowanie wyników ratowniczych badań archeologicznych przeprowadzonych na odcinku A1 planowanej autostrady w woj. kujawsko-pomorskim (b. woj. bydgoskie). Tom 6-a. Stare Marzy, gm. Dragacz, stanowisko 5. Toruń* (typescript in Archive of Institute of Archaeology NCU), 115-201.

Cyrek K. and Sudoł. M. 2009. Z najnowszych badań nad paleolitem schyłkowym na Pomorzu Wschodnim. In M. Fudziński and H. Paner (eds), *Aktualne problemy epoki kamienia na Pomorzu*. Gdańsk: Muzeum Archeologiczne, 67-84.

Domańska. L. 1995. *Geneza krzemieniarstwa kultury pucharów lejkowatych na Kujawach*. Łódź: Katedra Archeologii UŁ.

Domańska L. 2013. *Krzemieniarstwo horyzontu klasycznowióreckiego kultury pucharów lejkowatych na Kujawach*. Łódź: Instytut Archeologii UŁ, Fundacja UŁ.

Felczak O. 2020. Osadnictwo kultury pucharów lejkowatych nad dolną Wierzycą i Janką. In O. Felczak (ed.), *Wczesny i środkowy neolit na Pojezierzu Starogardzkim w świetle badań nad dolną Wierzycą i Janką* (= *Fontes Commentationesque ad Res Gestas Gedani et Pomerania* 8). Gdańsk: Muzeum Archeologiczne w Gdańsku, 95-187.

Gurova M. 2013. Towards the Meaning of Flint Grave Goods: A case study from Bulgaria. In A. Comsa, C. Bonsall and L. Nikolova (eds), *Facets of the past. The challenge of the Balkan Neo-Eneolithic: Proceedings of the International Symposium celebrating the 85th birth anniversary of Eugen Comsa: 6-12 October 2008, Bucharest, Romania.* Bucharest: Editura Acedemie Române, 375-393.

Inizan M.-L., Reduron-Ballinger, M., Roche H. and Tixier J. 1999. *Technology and Terminology of Knapped Stone*. Nanterre: Cercle de recherches et d'études préhistoriques.

Kabaciński J. and Sobkowiak-Tabaka I. 2019. Wytwórczość krzemieniarska społeczności kultury pucharów lejkowatych w Wielkopolsce. *Fontes Archaeologici Posnanienses* 55, 33-63.

Kadrow S. 1989. Skład wiórów krzemiennych kultury pucharów lejkowatych z Wincentowa, stanowisko 5, gm. Krasnystaw, woj. Chełm. *Sprawozdania Archeologiczne* 40 (1988), 27-33.

Kaszewski Z. 1979. Materiały starożytne z Kałdusa, woj. toruńskie. *Pomorania Antiqua* 8, 155-227.

Kondracki J. 1978. *Geografia fizyczna Polski*. Warszawa: PWN.

Kośko A. 1981. *Udział południowo-wschodnioeuropejskich wzorców kulturowych w rozwoju niżowych społeczeństw kultury pucharów lejkowatych. Grupa mątewska* (= *Materiały do syntezy pradziejów Kujaw* 4). Poznań: Wydawnictwo Naukowe UAM.

Kowalski Ł., Krzeszowski A., Adamczak K. and Garbacz-Klempka A. 2016. Wyniki badań archeometalurgicznych tzw. siekiery z dawnej miejscowości Antoniny, pow. chodzieski. *Fontes Archaeologici Posnanienses* 52, 175-205.

Kowalski Ł., Adamczak K., Garbacz-Klempka A., Degryse P., Stos-Gale Z., Kozicka M., Chudziak W., Krzyszowski A. and Jedynak A. 2019. Back to the Eneolithic: Exploring the Rudki-type ornaments from Poland. *Archaeological and Anthropological Sciences* 11, 4355-4377.

Kowalski Ł, Weckwerth P., Chabowski P., Adamczak K., Jodłowski P., Szczepańska G., Chajduk E., Polkowska-Motrenko H., Kozicka M. and Kukawka S. 2020. Towards ritualisation: insights into bone-tempered pottery from the TRB settlement in Kałdus (Poland, 3500-3350 BC). *Ceramics International* 46(3), 3099-3112.

Krzyszowski A. 2018. A new find of Świeciechów flint in Greater Poland. *Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria archeologiczna* 46 (2016-2017), 267-287.

Kukawka S. 1991. *Kultura pucharów lejkowatych na ziemi chełmińskiej w świetle źródeł ceramicznych* (= *Towarzystwo Naukowe w Toruniu. Prace Archeologiczne* 8). Toruń: TNT.

Kukawka S. 1997. *Na rubieży środkowoeuropejskiego świata wczesnorolniczego. Społeczności ziemi chełmińskiej w IV tysiącleciu p.n.e.* Toruń: Wydawnictwo Naukowe UMK.

Kukawka S. 2010. *Subneolit północno-wschodnioeuropejski na Niżu Polskim*. Toruń: Wydawnictwo Naukowe UMK.

Libera J., P. Mączyński, B. Polit, A. and Zakościelna A. 2019. Hoard of long flint blades from the Wodzisław Hummock, Lesser Poland. *Sprawozdania Archeologiczne* 71, 197-218.

Libera J. and Zakościelna A. 2006. Inwentarze krzemienne z grobów grupy południowo-wschodniej kultury pucharów lejkowatych. In J. Libera and K. Tunia (eds), *Idea megalityczna w obrządku pogrzebowym kultury pucharów lejkowatych*. Lublin, Kraków: Instytut Archeologii UMCS, Instytut Archeologii i Etnologii PAN O/Kraków, 135-169.

Lichardus-Itten M. 1981. Silex als Rohstoff in frühkupferzeitlichen Gräbern des Karpatenbeckens. In Weisgerber G., Slotta R. and Weiner J. (eds), *5000 Jahre Feuersteinbergbau. Die Suche nach dem Stahl der Steinzeit*. Bochum: Deutsche Bergbau-Museum, 279-283.

Małecka-Kukawka J. 1992. *Krzemieniarstwo społeczności wczesnorolniczych ziemi chełmińskiej (2 połowa VI – IV tysiąclecie p.n.e.)*. Toruń: Wydawnictwo UMK.

Małecka-Kukawka J. 1994. „Gospodarka" surowcami krzemiennymi wśród społeczności wczesnorolniczych ziemi chełmińskiej z perspektywy teorii wymiany społecznej. In L. Czerniak (ed.), *Neolit i wczesna epoka brązu na ziemi chełmińskiej*. Grudziądz: Muzeum w Grudziądzu, IAiE UMK w Toruniu, 37-50.

Małecka-Kukawka J. 2009a. Aktualne problemy badań nad krzemieniarstem społeczności wczesnorolniczych na Pomorzu Nadwiślańskim. In M. Fudziński and H. Paner (eds), *Aktualne problemy epoki kamienia na Pomorzu*. Gdańsk: Muzeum Archeologiczne, 167-177.

Małecka-Kukawka J. 2009b. Badania nad krzemieniarstwem neolitycznym na Pomorzu – próba bilansu po dwudziestu pięciu latach. In M. Fudziński and H. Paner (eds), *Aktualne problemy epoki kamienia na Pomorzu*. Gdańsk: Muzeum Archeologiczne, 157-165.

Małecka-Kukawka J. 2020. Materiały krzemienne kultury pucharów lejkowatych ze stanowisk zlokalizowanych w rejonie dolnej Wierzycy i Janki na Pojezierzu Starogardzkim. Wyniki analiz morfologicznej, surowcowej i traseologicznej. In O. Felczak (ed.), *Wczesny i środkowy neolit na Pojezierzu Starogardzkim w świetle badań nad dolną Wierzycą i Janką* (= *Fontes Commentationesque ad Res Gestas Gedani et Pomerania* 8). Gdańsk: Muzeum Archeologiczne, 227-268.

Migal W. 2002. Zamysł technologiczny wióra krzemiennego z Winiar, gm. Dwikozy. In B. Matraszek and S. Sałaciński (eds), *Krzemień świeciechowski w pradziejach. Materiały z konferencji w Ryni 22-24.05.2000* (= *Studia nad gospodarką surowcami krzemiennymi w pradziejach* 4). Warszawa: Wydawnictwo Naukowe Semper, 255-266.

Migal W. 2006a. About the variability of reduction sequences of the Globular Amphoras Culture. In G. Körlin and G. Weisgerber (eds), *Stone Age – Mining Age* (= *Der Anschnitt* 19). Bochum: Deutsches Bergbau-Museum, 523-530.

Migal W. 2006b. The macrolithic flint blades of the neolithic times in Poland. In J. Apel and K. Knutsson (eds), *Skilled Production and Social Reproduction. Aspects of Traditional Stone-Tool Technologies. Proceedings of a Symposium in Uppsala, August 20-24, 2003* (= *SAU Stone Studies* 2). Uppsala: Societas Archaeologica Upsaliensis & The Department of Archaeology and Ancient History, 387-398.

Młynarczyk H. 1982. Materiały krzemienne z grobowców kujawskich w Sarnowie, Gaju, Leśniczówce i Wietrzychowicach. *Światowit* 35, 55-93.

Papiernik P. 2016. Materiały krzemienne kultury pucharów lejkowatych z rejonu Brześcia Kujawskiego i Osłonek. In R. Grygiel, *Neolit i początki epoki brązu w rejonie Brześcia Kujawskiego i Osłonek. T. III: Środkowy i późny neolit: kultura pucharów lejkowatych*. Łódź: Fundacja Badań Archeologicznych Imienia Profesora Konrada Jażdżewskiego, MAiE w Łodzi, 597-751.

Papiernik P. and Rybicka M. 2001. *Annopol. Osada kultury pucharów lejkowatych na Pojezierzu Gostynińskim*. Łódź: Muzeum Archeologiczne i Etnograficzne: Fundacja Badań Archeologicznych im. Profesora Konrada Jażdżewskiego.

Pelegrin J. 2006. Long blade technology in the Old World: an experimental approach and some archaeological results. In J. Apel and K. Knuttson (eds), *Skilled Production and Social Reproduction. Aspects of Traditional Stone-Tool Technologies. Proceedings of a Symposium in Uppsala, August 20-24, 2003* (= *SAU Stone Studies* 2). Uppsala: Societas Archaeologica Upsaliensis & The Department of Archaeology and Ancient History, 37-68.

Pyżewicz K. 2013. *Inwentarze krzemienne społeczności mezolitycznych w zachodniej części Niżu Polskiego. Analiza funkcjonalna*. Zielona Góra: Wydawnictwo Fundacji Archeologicznej.

Sosnowski W. 1994. Stanowiska neolityczne i z początków epoki brązu na ziemi chełmińskiej. In L. Czerniak (ed.), *Neolit i wczesna epoka brązu na ziemi chełmińskiej*. Grudziądz: Muzeum w Grudziądzu, IAiE UMK w Toruniu, 51-55.

Słupczewski M. 2003. Kultura pucharów lejkowatych. In *Opracowanie wyników ratowniczych badań archeologicznych przeprowadzonych na odcinku A1 planowanej autostrady w woj. ku-*

jawsko-pomorskim (b. woj. bydgoskie). Tom 6-b. Stare Marzy, gm. Dragacz, stanowisko 5. Toruń (typescript in Archive of Institute of Archaeology NCU), 202-236.

Starkel L. 2001. *Historia doliny Wisły: od ostatniego zlodowacenia do dziś* (= *Monografie. Instytut Geografii i Przestrzennego Zagospodarowania im. Stanisława Leszczyckiego PAN* 2). Warszawa: PAN.

Winiarska-Kabacińska M. 2018. Results of Traseological Analyses of Two Flint Artefacts from Luboń (site 65), 2 Kwiatowa St (anex). *Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria archeologiczna* 46 (2016-2017), 280-283.

Włodarczak P. 2006. Chronologia grupy południowo-wschodniej kultury pucharów lejkowatych w świetle dat radiowęglowych. In J. Libera and K. Tunia (eds), *Idea megalityczna w obrządku pogrzebowym kultury pucharów lejkowatych*. Lublin, Kraków: Instytut Archeologii UMCS, Instytut Archeologii i Etnologii PAN O/Kraków, 27-66.

Zakościelna A. 1994. *Krzemieniarstwo kultury wołyńsko-lubelskiej ceramiki malowanej*. Lublin: Katedra Archeologii UMCS.

Zakościelna A. 2008. Wiórowce-sztylety jako atrybuty pozycji społecznej mężczyzn kultury lubelsko-wołyńskiej. In J. Bednarczyk, J. Czebreszuk, P. Makarowicz and M. Szmyt (eds), *Na pograniczu światów. Studia z pradziejów międzymorza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Kośko w 60. rocznicę urodzin*. Poznań: Wydawnictwo Poznańskie, 577-591.

Zakościelna A. 2010. *Studium obrządku pogrzebowego kultury lubelsko-wołyńskiej*. Lublin: Wydawnictwo UMCS.

Zakościelna A., Adamczak K., Garbacz-Klempka A. and Kowalski Ł. 2023. A Cucuteni-Vădastra Type Dagger from Site 26 at Strzyżów (S-E Poland) Attests to the Intercultural Landscape of the Eneolithic Eastern Carpathians. *Analecta Archaeologica Ressoviensia* 18, 83-95.