

**RECEPTION ZONES OF  
'EARLY BRONZE AGE'  
PONTIC CULTURE TRADITIONS:  
BALTIC BASIN – BALTIC AND BLACK SEA  
DRAINAGE BORDERLANDS,  
4/3 mil. TO FIRST HALF 2 mil. BC**

**Aleksander Koško**

**Jerzy Libera**

**Jan Machnik**

**Marzena Szmyt**

**Halina Taras**

**Stanisław Wilk**

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**Anna Zakościelna**

**BALTIC-PONTIC STUDIES**

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**V O L U M E 19 • 2014**

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Poznań 2014

ISBN 83-86094-19-2

ISSN 1231-0344



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Cover Design: Eugeniusz Skorwider

Linguistic consultation: Ryszard J. Reisner  
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Printed in Poland

Computer typeset by PSO Sp. z o.o. w Poznaniu

Printing: Zakłady Poligraficzne TMDRUK in Poznań

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## Editor's Foreword

The articles presented in vol. 19 *Baltic-Pontic Studies (BPS)* continue the discussion on 'Pontic Early Bronze Age Civilisations' and their role in the cultural development of prehistoric communities in the Baltic drainage basin or more broadly speaking, present-day central-eastern Europe at the turn of the 3rd mill. through to the 2nd mill. BC. Related issues have been examined in depth in previous BPS volumes, notably 11, 14 and 18 respectively.

The scholarly discussion that constitutes this publication can be divided into two major research questions:

1) evidence of hypothetical markers of Pontic cultures and their attempts at an autogenetic interpretation:

Late Eneolithic and Early Bronze Age taxa for Tripolie culture, Phase CII and Early Bronze Age cultures such as Pit Grave, Catacomb and Babyno in the Baltic basin. These in turn may be divided geographically: physiographic-cultural, Old Upland (Piotr Włodarczak) and Lowland – Silva (Aleksander Kośko)

2) the adaptation of Pontic cultural models in terms of differentiated forms of 'neighbours' cohabitation':

taxonomically differentiated communities from the Baltic and Black Sea borderlands (Jerzy Libera, Jan Machnik, Marzena Szmyt, Halina Taras, Stanisław Wilk and Anna Zakościelna).

The present volume of BPS 19 was made possible due to the generous financial support given for undertaking scholarly investigation and associated editing, as well as administration under the aegis of grants from the National Science Centre (no. 2011/01/M/HS3/02142) and the National Programme for the Development of the Humanities (no. (108/NPH3/H12/82/2014).

Professors Viktor I. Klochko and Przemysław Makarowicz kindly reviewed this publication.

## Editorial comment

1. All dates in the B-PS are calibrated [BC; see: Radiocarbon vol. 28, 1986, and the next volumes]. Deviations from this rule will be point out in notes [bc].
2. The names of the archaeological cultures and sites are standarized to the English literature on the subject (e.g. M. Gimbutas, J.P. Mallory). In the case of a new term, the author's original name has been retained.
3. The spelling of names of localities having the rank of administrative centres follows official, state, English language cartographic publications (e.g. *Ukraine, scale 1 : 2 000 000*, Kyiv: Mapa LTD, edition of 1996; *Rèspublika BELARUS', REVIEW-TOPOGRAPHIC MAP*, scale 1:1 000 000, Minsk: *BYELORUSSIAN CARTOGRAPHIC AN GEODETIC ENTERPISE*, edition 1993).

Piotr Włodarczak

## THE TRAITS OF EARLY-BRONZE PONTIC CULTURES IN THE DEVELOPMENT OF OLD UPLAND CORDED WARE (MAŁOPOLSKA GROUPS) AND ZŁOTA CULTURE COMMUNITIES

### 1. INTRODUCTION

In Małopolska (south-eastern Poland)<sup>1</sup>, Final Neolithic finds (Fig. 1) illustrate a rich and unique set of funerary rites unknown in any other region of the south-eastern branch of the Corded Ware culture complex (CWC)<sup>2</sup>. Moreover, the finds from cemeteries are numerous and meaningful enough to allow their correlation with the rites of Early Bronze communities, settling the steppes and forest-steppes north of the Black Sea in the 3rd millennium BC. More such comparisons were made prior to the Second World War when archaeologists often conducted excavations both in Małopolska and on the Podolia forest-steppe without drawing any significant distinctions between prehistoric societies settling these two areas [e.g. Antoniewicz 1925]. Beginning with the middle of the 20th century, publications on the Małopolska Final Neolithic chiefly focused on the dynamics of internal processes, leaving relations with distant regions aside [Machnik 1966; 1979b; Kempisty 1978; Włodarczak 2006]. Over a decade ago, this perspective was changed by Jan Machnik's studies that stressed the presence of grave assemblages with pottery displaying traits characteristic of the Middle Dnieper culture in Małopolska [Machnik 1999; Machnik *et al.* 2009]. The monographs drew attention to the possibility of long-distance migrations of groups of humans from

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<sup>1</sup> The terms 'south-eastern Poland' and 'Małopolska' are used interchangeably. The area is also held to include east-central Poland, in particular the Lublin Upland. The consideration of these regions as a single unit, in conformity with many traditional historical divisions, is justified with respect to Late Neolithic finds.

<sup>2</sup> Abbreviations used in this paper: GAC – Globular Amphora culture, CWC – Corded Ware culture, FBC – Funnel Beaker culture, YC – Yamnaya culture, CC – Catacomb culture, ZC – Złota culture.

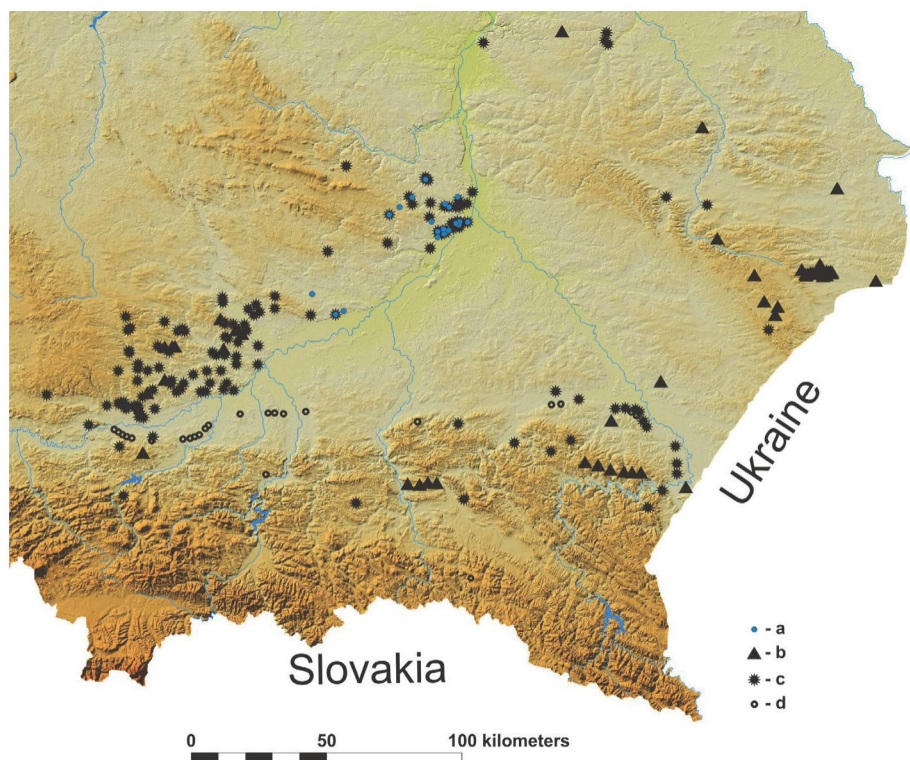


Fig. 1 Grave finds and Final Neolithic settlements in Małopolska: a – Złota culture cemeteries and single graves, b – Corded Ware culture barrows, c – Corded Ware culture cemeteries and single graves, d – Corded Ware culture settlement sites

the middle Dnieper drainage basin to the uplands of south-eastern Poland. Further studies aimed at determining the relationships holding between central European and northern Pontic communities are currently justified by a general accretion of knowledge on the prehistory of these regions (*see* part 2), including the discovery of new, intriguing sources (*see* part 3).

In the last several decades, the studies of the Final Neolithic as a rule have not covered all of south-eastern Poland. Separate studies were devoted to loess uplands west of the Vistula River [Kempisty 1978; Włodarczak 2006]. In the late 20th century, the view prevailed that cultural development there clearly differed from the situation recorded in Sub-Carpathia and on the Lublin Upland. The differences supposedly reflected discrepancies in settlement and economic systems adopted by the communities settling these regions [Machnik 1994; 1997a]. This thesis underscored the respective separateness of the phenomena of niche and barrow graves, with the former representing the younger period of CWC development only on the



Vistula's left bank [Kempisty 1978; Machnik 1998]. The model of funerary behaviour shared by the Kraków-Sandomierz group was considered local at that time and clearly different from patterns recorded in eastern Małopolska. In the discussion below, all CWC materials from south-eastern Poland were considered together – as a group of finds standing out from adjacent regions and comparable to the model shared by the YC and CC.<sup>3</sup> The main reason behind this approach was the significance of new discoveries made in the Carpathian foothills [Machnik 2011] and on the Lublin Upland, but especially on the Sokal Ridge (*Grzęda Sokalska*) [Machnik *et al.* 2009] and the Nałęczów Plateau. These allow a more comprehensive and slightly modified view of the Final Neolithic societies in Małopolska. Currently, it can be held that individual local find clusters from this area make up a group whose cultural character differs from the picture recorded for adjacent areas. Interestingly enough, the dissemination limits of the Małopolska CWC variety are more clearly marked in the north, south and west, while they are harder to delineate in the east. The reason behind this is the very distribution itself of the known sites of this culture: clusters in the eastern fringes of Małopolska continue further east, into western Ukraine. This can be seen in the similar character of the Final Neolithic barrow funeral rite there [Sulimirski 1968; Machnik 1979a; 1979b; Włodarczak 2014].

Złota-type grave finds – so far known only from the Sandomierz Upland and the east of the Nida Basin (*Niecka Nidziańska*) [Krzak 1976; Machnik 1979b; recently: Witkowska 2013] – are considered here a manifestation of the transformation of the Late Neolithic system (GAC) into the Final Neolithic one (CWC) in agreement with the pattern outlined earlier [Włodarczak 2008a]. The rite components finding analogies in the phenomenon of Final Neolithic CWC communities include above all: (a) new grave-good rules, (b) typological traits of some grave goods, corresponding to examples known from the CWC circle, and (c) arrangement of some bodies, emphasizing the individual character of a burial in a peculiar way.

Materials from cemeteries are primary sources for the study of Final Neolithic communities in Małopolska. Any information on settlements continues to be scarce, although some more has become recently available, owing to large rescue excavations preceding the construction of motorways. What emerges is the connection between CWC settlement and large river valleys such as the Vistula, Raba and Dunajec [summary: Włodarczak 2013b]. However, no traces of settlements have been found on the uplands (apart from a few flint-working workshops), from where most grave finds originate.

Comparisons drawn here refer to YC and CC rite traits. Comparative materials come from western groups located in the North Pontic Area. They represent south-western and south-eastern varieties of the YC distinguished by N.Ya. Merpert [1968; quoted after Rassamakin 2013]. In addition, comparative materials

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<sup>3</sup> The discussed group of materials includes also finds collected from sites in the border zone, located already in western Ukraine, northwest of the upper Dniester (e.g. barrows from Balice, Mirzyniec and Nowosiółki).

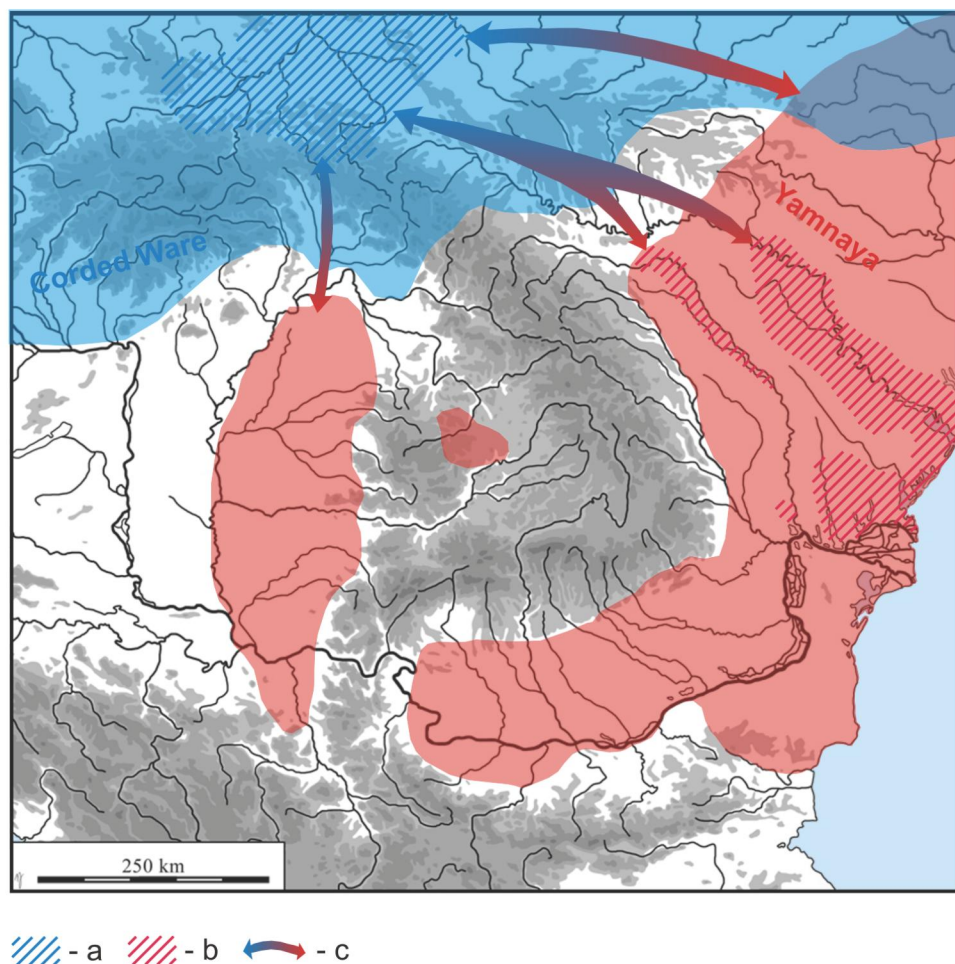


Fig. 2 Location of Małopolska Corded Ware culture sites in the context of Yamnaya culture and Catacomb culture finds: a – Małopolska Corded Ware culture, b – clusters of west-Pontic Catacomb culture graves, c – major communication routes between Yamnaya culture-Catacomb culture and Małopolska Corded Ware culture communities

come also from the western portion of the CC complex range [Toshev 1991]. Among them, a prominent position is occupied by relatively rich YC finds, coming from the area between the Dniester and Danube rivers, sometimes referred to as the ‘Budzhak culture’ [Ivanova 2013]. The area is worthy of note because of its tradition of contacts with lands lying further west (Carpathian and north Balkan zones) and north of it (area occupied by GAC settlement). These extraneous ties and connections to the patterns of the late phase of the Tripolie culture (mainly to

the Usatovo group) have produced a peculiar model of cultural behaviour, different from that observable in YC groups lying further east.

The major emerging question therefore is the permanence and significance of communication with CWC communities, settling the Podolia Upland and lands lying further west (including Małopolska discussed here). In turn, the north-western, 'forest-steppe' YC variety appears to be an inspiring object of comparison because of its relation to Middle Dnieper culture communities neighbouring on it in the north. In recent years, the traits of the last-mentioned culture have been revealed in Final Neolithic assemblages in Małopolska [Machnik 1999; Machnik *et al.* 2009]. The emerging, ever stronger, ties between the communities of the CWC circle (inclusive of the Middle Dnieper culture), settling the eastern and western portions of the Volhynia Upland as well as Małopolska Sub-Carpathia, help take a different view of the ties with the cultural groups known from the steppes and forest-steppes north of the Black Sea. The question of these ties must be viewed in a broad perspective; from the middle Dnieper area as far as Podolia on the Dniester. Furthermore, it is important to observe that the ties extended along two major directions (in other words: two communication routes – Koško, Kložko 2011: 14-16): (a) latitudinal – from the middle Dnieper area across Volhynia to Małopolska and (b) southeast – northwest, following the convenient arteries of the Boh, Dniester, Prut and Seret rivers (Fig. 2). A separate question, which is not discussed here, concerns the longitudinal ties related to the presence of YC communities on the upper Tisza [Włodarczak 2010] and Prut rivers [*see* comments on the relations between the Podolia CWC and finds from northern Moldavia: Burtănescu 2002a: 205-212].

## 2. COMPARISON OF FUNERARY RITES

In Małopolska, the Final Neolithic (ca. 2800-2300 BC) is associated with the domination of the 'Beaker culture' model (CWC and Bell Beaker culture). A clear change in belief systems taking place at that time can be seen above all in a new funerary rite. The question of its connection with the spreading of the ideology of steppe communities has been discussed in European archaeology for many years [e.g. Häusler 1981; 1992]. The resultant comparisons point to both similarities and differences, while conclusions derived from them are a recurrent subject of debates. In the on-going discussion, Małopolska merits attention because of its relative proximity to lands settled by steppe circle communities. Materials originating from there are included in the south-eastern part of the complex of cultures with corded ware, forming a relatively well-explored group of finds among them. Moreover, the peculiarities of funerary rites recorded there differ from patterns



found in other CWC regions, while some elements (e.g. catacomb grave structure) find close analogies in YC and CC materials. Hence, a comparison with the North Pontic cultural circle may prove to be an inspiring endeavour. From this perspective, the following seem important: (a) nature of the barrow, (b) grave structure traits, (c) burial arrangement, (d) quality of grave goods, and (e) selected artefacts discovered in CWC features (with special prominence given to new discoveries).

#### *Idea of the barrow*

In the Late and Final Neolithic in Małopolska, barrows were part of the CWC funerary ritual. So far, no connection has been found, linking them to GAC and ZC rites. Barrows are not known from the period immediately preceding the rise of the CWC model, either, i.e. a period dominated by the Baden cultural model (ca. 3300-2800 BC). However, a few circular mounds are documented for the Middle Neolithic and, being a component of the FBC ritual, are dated to ca. 3650-3350 BC [Tunia, Włodarczak 2011: 209, 210]. Tracing the concept of the CWC barrow to that tradition which is older by several hundred years can by no means be corroborated at present. The Final Neolithic ritual in south-eastern Poland is, therefore, a new phenomenon whose allochthonous origin is very likely as is its association with the North Pontic ritual. In a similar time horizon (perhaps a little older than the rise of the CWC complex), in central Europe north of the Carpathians, the concept of the barrow was to a limited degree adopted only in the ritual of the Polish GAC group [Wiślański 1966: 56; Szmyt 2011]. It cannot be ruled out that this was also an effect of new 'eastern European' traditions spreading into central European cultural complexes. Around 2800-2700 BC, the dissemination of the barrow ritual marks a clear dividing line in the whole region, while the customs of Małopolska communities illustrate a marked change in funerary rites.

The cycles of barrow cemetery use in Małopolska and the North Pontic Area follow a similar rhythm. In the latter area, an increased activity of building tombs with circular mounds is dated to the first half of the 3rd millennium BC (to be more specific: 2900-2600 BC) and associated with the older phase of the YC and the older development stage of Małopolska CWC. The mounds built at that time formed clusters – ceremonial centres. In successive centuries, the number of new barrows dropped dramatically and burials were instead dug into mounds built earlier. Moreover, flat cemeteries are also recorded in Małopolska. The trend to reuse tombs built earlier was strong enough to make the name 'barrow communities' adequate for population groups settling Małopolska until the end of the Final Neolithic, that is to about 2400/2300 BC [Włodarczak 2013b]. As in the North Pontic Area, in south-eastern Poland, burials were sunk also into tombs dating back to the older periods of prehistory (FBC megalithic features). However, any attempts to remodel such older structures by adding earth and building circular mounds have as yet not been documented well. That such attempts could have been made is attested by investigation results in Malice Kościelne and Zagaje Stradowskie [Włodarczak 2008c:158]. These are, however, rare instances – unlike in the North Pontic Area

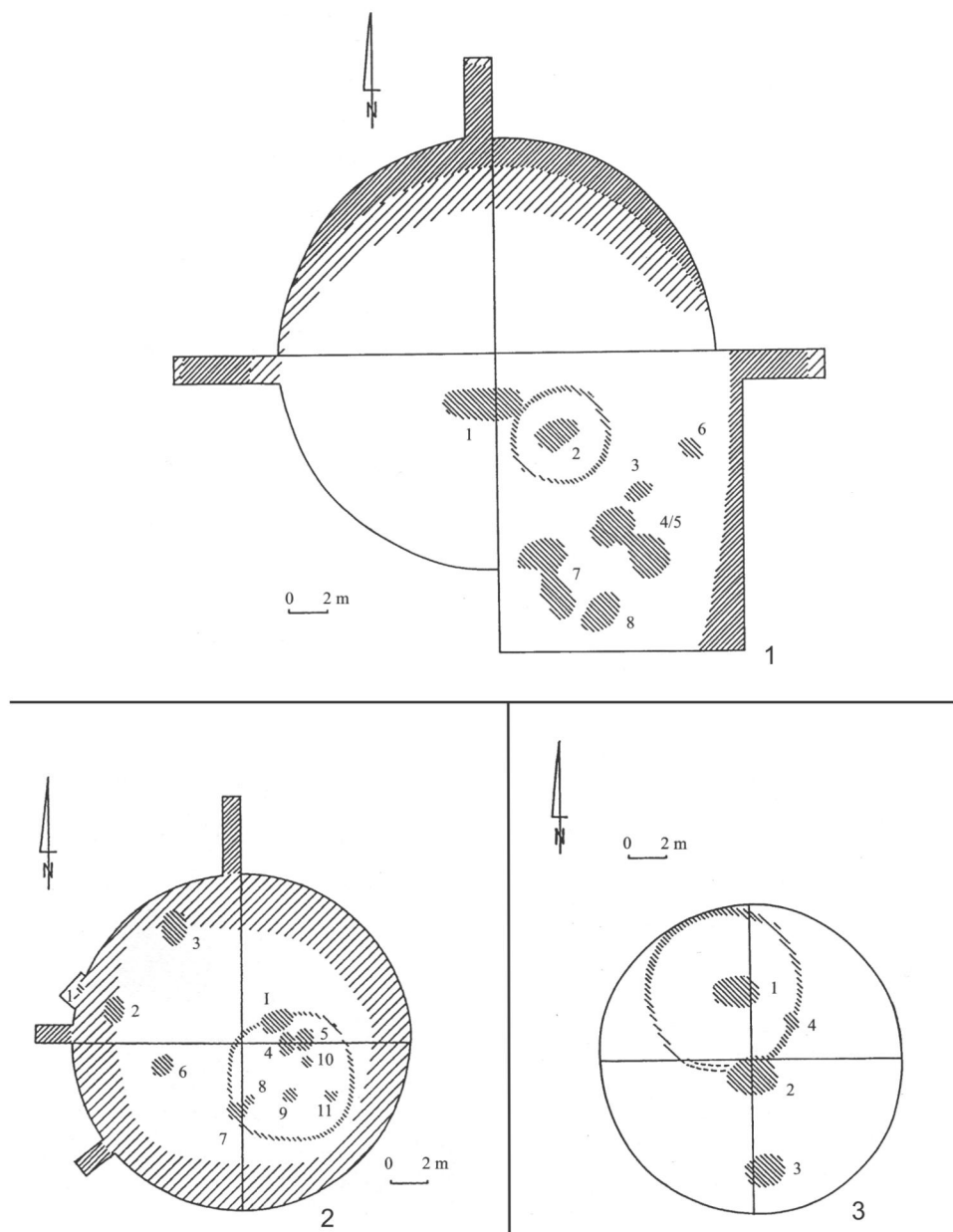


Fig. 3. Examples of multi-phase barrows from Grzęda Sokalska [Machnik *et al.* 2009]: 1 – Wierszczyca, site 31, barrows 1, 2 – Wierszczyca, site 30, barrow 1, 3 – Wierszczyca, site 1, barrow 1

where the incavation of YC graves was often accompanied by the enlarging of older Eneolithic barrows.

As a rule, a 3rd millennium BC barrow was built over a single grave pit holding a single burial. Exceptions to this rule (mounds over a pair of graves) are rare (none has been recorded so far in Małopolska). In the case of the CWC, a barrow is usually a one-off structure if one ignores the fact – hard to prove – that the mound over the central grave could have been raised in stages. Sometimes this can be seen in hearths found on various barrow levels. With the YC, it was a frequent practice to expand a tomb when secondary burials were dug in. Hence, special attention is merited by few multi-stage Małopolska barrows. Examples include some barrows from the Sokal Ridge [Fig. 3; Machnik *et al.* 2009: 74, Fig. 53:1; 140, Fig. 110:1] and barrow 2, Miernów, western Małopolska [Kempisty 1978: 10]. In these cases, barrows were expanded when successive burials were incavated.

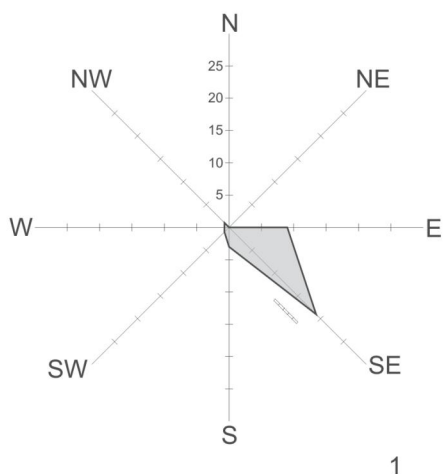
CWC barrows had become a distinct and significant landscape element in Małopolska and were used for burial purposes by various communities for centuries. In no case, however, did they start any larger cemeteries.<sup>4</sup> The number of Final Neolithic and Early Bronze graves sunk into barrows is smaller than in the North Pontic Area. Also east of Małopolska, in western Ukrainian CWC barrows, only single secondary burials are recorded. The custom of digging successive burials into existing mounds is closely associated in the case of the YC with the North Pontic Area though (in particular its steppe part), while in the Danube groups of this culture, the number of secondary burials is considerably lower. On the Tisza River, as a rule no such features are recorded [Ecsedy 1979]. Interestingly enough, in the contact zone with the CWC complex, namely in Podolia and on the middle Prut River, the number of secondary burials is much lower than on the Budzhak steppe [Dergachev 1982; Włodarczak 2014]. It can be assumed, therefore, that the idea of using barrow cemeteries by CWC communities and by the adjacent groups of YC populations was similar. Its detailed rules (above all connections between individuals buried in particular barrows) have not been traced yet. What seems established is the fact that barrows were not regularly used as multi-generation burial places in which all family members were buried. Selection is observable in the case of both graves under barrows (in Małopolska, exclusively male burials have been unearthed so far) and secondary graves.

In the regions compared here, there were rules for digging secondary burials into mounds and their rims. Secondary burials form arches or rings surrounding the central grave. In Małopolska, as a rule they were placed in the eastern or south-eastern parts of the mound (Fig. 4). This rule is less clear in the North Pontic Area where a considerable number of YC graves are found also in other

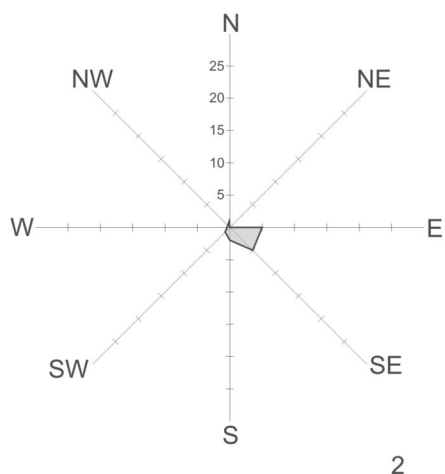
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<sup>4</sup> The only larger cemetery – in Żerniki Górne – in the opinion of the author of excavations – was a flat feature located underneath a Trzciniec culture barrow [Kempisty 1978]. A definitive assessment of its nature is prevented by modern damage to the central part of the mound and dense clusters of features from various periods of prehistory.

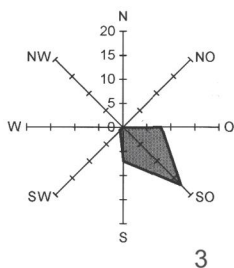
Corded Ware - western Małopolska (n=33)



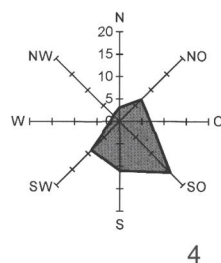
Corded Ware - Lublin upland (n=14)



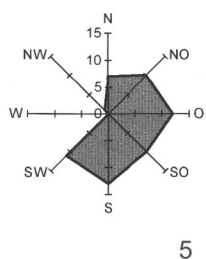
Catacombnya - northern Moldavia (n=33)



Catacombnya - southern Moldavia (n=58)



Catacombnya - region of Odessa (n=65)



Catacombnya - Ingul group (n=114)

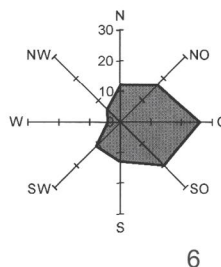


Fig. 4. Position of secondary burials relative to barrow centre in western Małopolska (1), on Lublin Upland (2) and in western stretches of the Catacomb culture. [3-6; *after* Kaiser 2003]

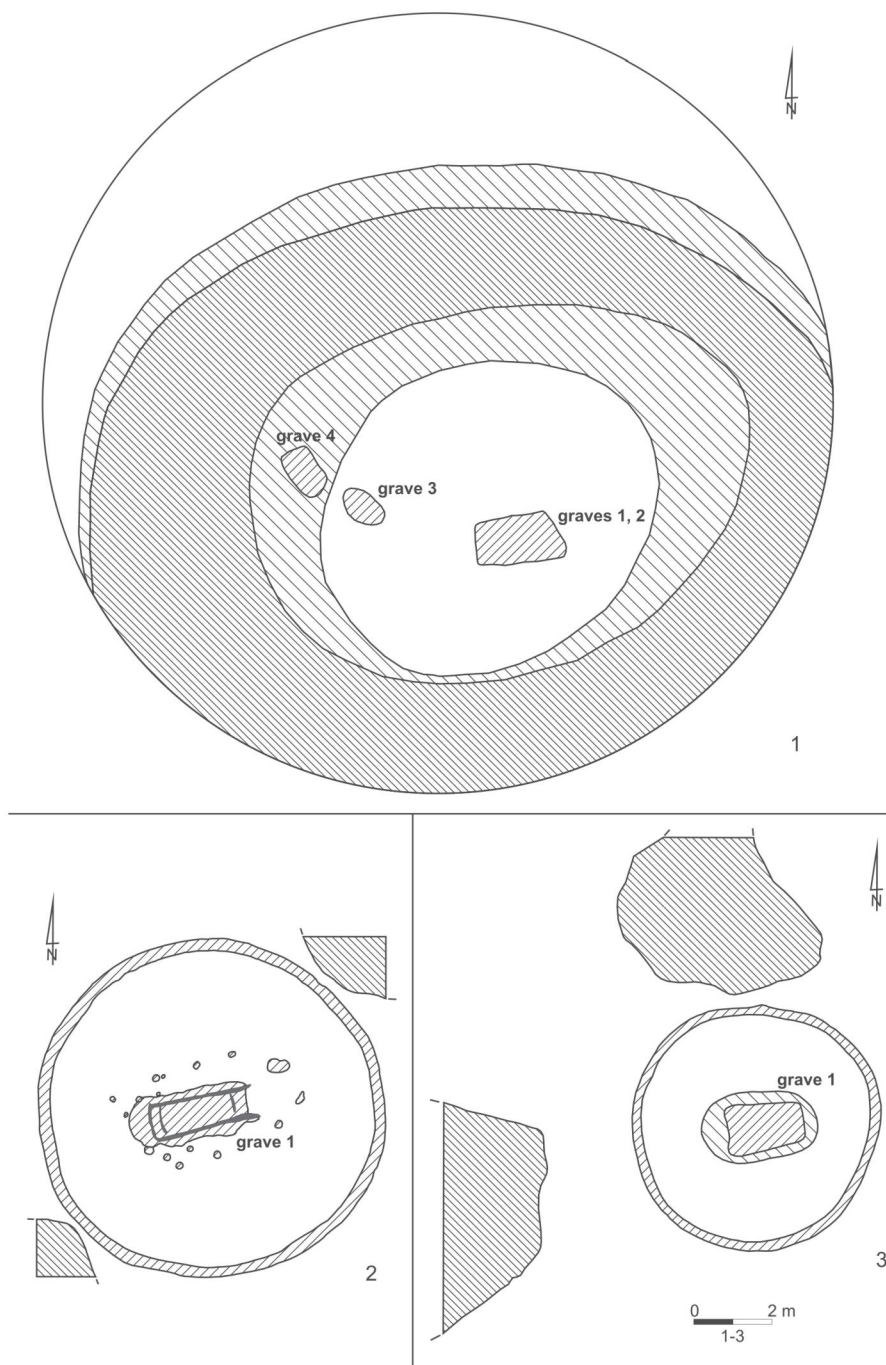


Fig. 5. Examples of Małopolska barrow constructions: 1 – Nedeżów, site 22, barrow 2, 2 – Niepla, 3 – Krajowice. [after Machnik *et al.* 2009, Gancarski, Valde-Nowak 2011]



portions of the mound. What draws attention, however, is a similarity in placing CWC catacomb graves and CC features within mounds. In the case of the latter, the similarity holds in most of its regional groups, including the north-westernmost cluster in northern Moldavia [Kaiser 2003: 36, 37, Fig. 5, 6].

The details of barrow design differ between Małopolska and the North Pontic Area. First, in south-eastern Poland, no large barrows have been identified so far, i.e. ones with a diameter of more than 30 m. All barrows known from the region are small and very small when compared to YC features. Second, the traces of borrow pits show that the features were of different construction. In Małopolska, regular extensive ring-shaped depressions encircling the barrow (typical of YC cemeteries) are very rare (Fig. 3:2; 5:1). They were encountered only when investigating some barrows from the Sokal Ridge [Nedeżów, site 20, barrow 1; Wierszczyca, site 30, barrow 1; Machnik *et al.* 2009, Fig. 95:A; 151, Fig. 119:1]. By contrast, CWC borrow pits were crescent-shaped (Fig. 3:1), irregular (Fig. 5:2, 3) or no traces of them have been recorded in the immediate vicinity of the barrow. Furthermore, Małopolska sites lack another element characteristic of most YC barrows: embankments encircling central graves, consisting of the earth excavated while digging these features. The only instance of such an embankment comes from the site in Nyzhni Hayi, near Drohobych, Ukraine [Machnik *et al.* 2011: 39, Fig. 5].

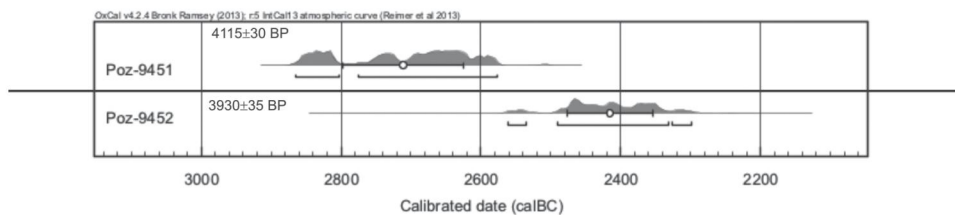
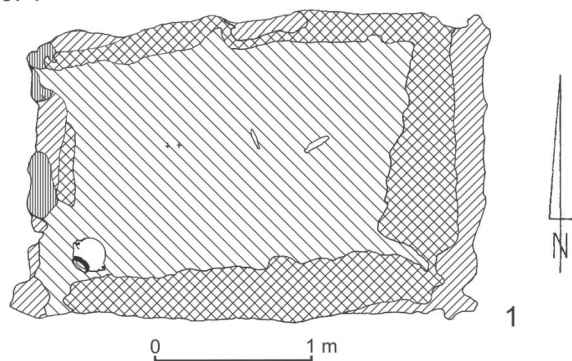
A frequent element of the Małopolska barrow design, a narrow circular ditch, usually ran along the mound rim (Fig. 3:1-3; 5: 2, 3). The idea of hemming in the barrow perimeter in this way can also be seen on YC sites, although less often than around central-European barrows [Ivanova 2001: 26, 30]. Besides ditches, there were also stone structures used for this purpose on YC sites (cromlechs) – a legacy of the preceding Eneolithic period – which are absent from Małopolska CWC sites. In the case of the YC, the purpose of enclosing the barrow space could have been served by the ring-shaped ditches mentioned earlier.

In terms of design therefore, barrows from south-eastern Poland resemble much more closely the contemporary structures found in the adjacent regions of central Europe (Polish Lowland or Moravia) than North Pontic Area mounds. If their ‘eastern’ origins were assumed, it would have to be accepted that Małopolska became home to a model selected from a much broader cultural assortment. The overall design of barrow structures in the two areas under comparison is, however, the same. Considering the contrast with earlier, Late Neolithic funerary rites, it is possible to better appreciate the role of YC models in the emergence of a new central European ritual.

#### *Idea of the grave*

Any discussion of the nature of the grave shared by the North Pontic Area communities in the 3rd millennium BC (YC and CC) necessarily concentrates on its permanent element: the burial is not placed in a filled pit to be subsequently buried but in an empty chamber where the walls, floor and ceiling are variously

Grave no. 1



Grave no. 2

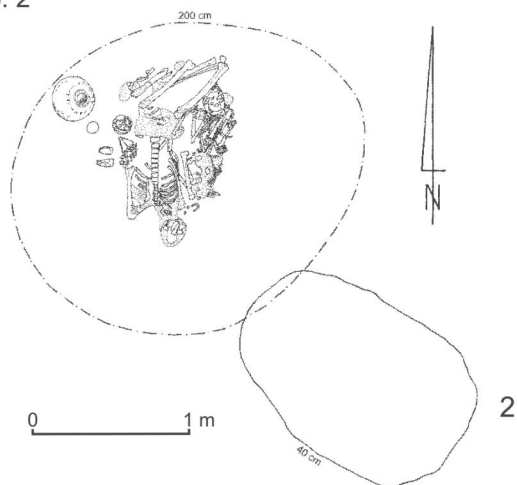


Fig. 6. Chronological sequence of Corded Ware culture graves from barrow 1 in Gabułów [Górski, Jarosz 2006]: 1 – grave 1 (central, pit), 2 – grave 2 (secondary, catacomb)

fashioned. This shows an effort to make the grave a chamber – a house for the deceased. Leaving aside semiotic interpretations, such a design fits into a broader trend of changes in the funerary ritual, emphasizing the unique nature of an individual; each deceased has the right to an appropriately refined burial with appropriately designed surroundings and body arrangement. In the case of Małopolska, this type of behaviour is observed too; it can be seen in central barrow and niche graves.

So far, no discovery has been made in Małopolska of a barrow grave whose design would have a close analogy in the North Pontic Area. Similarities are only general and concern the nature of the chamber itself and the use of timber elements to enclose it. However, the very manner of its construction is clearly different. In addition, floor structures and horizontal roofing are not known either (although it is very likely that grave chambers were covered in one way or another). No record has been made, either, of any traces of lining grave bottoms with mats, bark or other organic materials, so characteristic of YC graves. In Małopolska in this context, rectangular or sub-rectangular features dominate. There are both simple pits and more complex structures. To build the latter, timber elements were used, forming chest-like structures. One recurrent procedure involves fitting a large wooden chest into a clearly larger pit. Graves of this type were recorded in various parts of Małopolska (e.g. Gabułów, Kocmyrzów, barrow B in Bierówka, Niepla – *see* Figs. 5:2, 3; 6:1), and other regions of central and northern Europe lying further west.

The above-specified complex structures have not been recorded so far in the case of graves dug into barrows and flat cemetery features. They are, therefore, a characteristic of central graves only. This is a different situation than in the North Pontic Area where analogous or sometimes identical structures could be part of both central graves and others secondarily incavated into barrows. The difference between central graves and ones of secondary graves, observable on Małopolska sites, is therefore a sign of discontinuity caused in all probability, by chronological differences. It is plausible to assume that between the time of barrow construction and that of secondary burials usually a noticeable hiatus interposed. At present, it is hard to verify this observation by using absolute dating methods – due to the absence of appropriate data and the insufficient accuracy of radiocarbon dating. A model example confirming the existence of such a hiatus is offered by the results of the dating of graves from a barrow in Gabułów [Fig. 6; Jarosz, Włodarczak 2007: 83, Fig. 5]. Hence, in the course of the first one or two centuries, Małopolska witnessed the rise of ceremonial zones, consisting of barrows, holding, for the most part, single burials. In contrast, such a phase is not observable in the North Pontic Area where a continuity of barrow use, involving secondary graves, is recorded from the very beginning.

One point of similarity in the funerary rites between the systems under comparison, however, is that both orientate central graves mostly along the W-E axis. This principle firmly holds in the group of finds included in the oldest

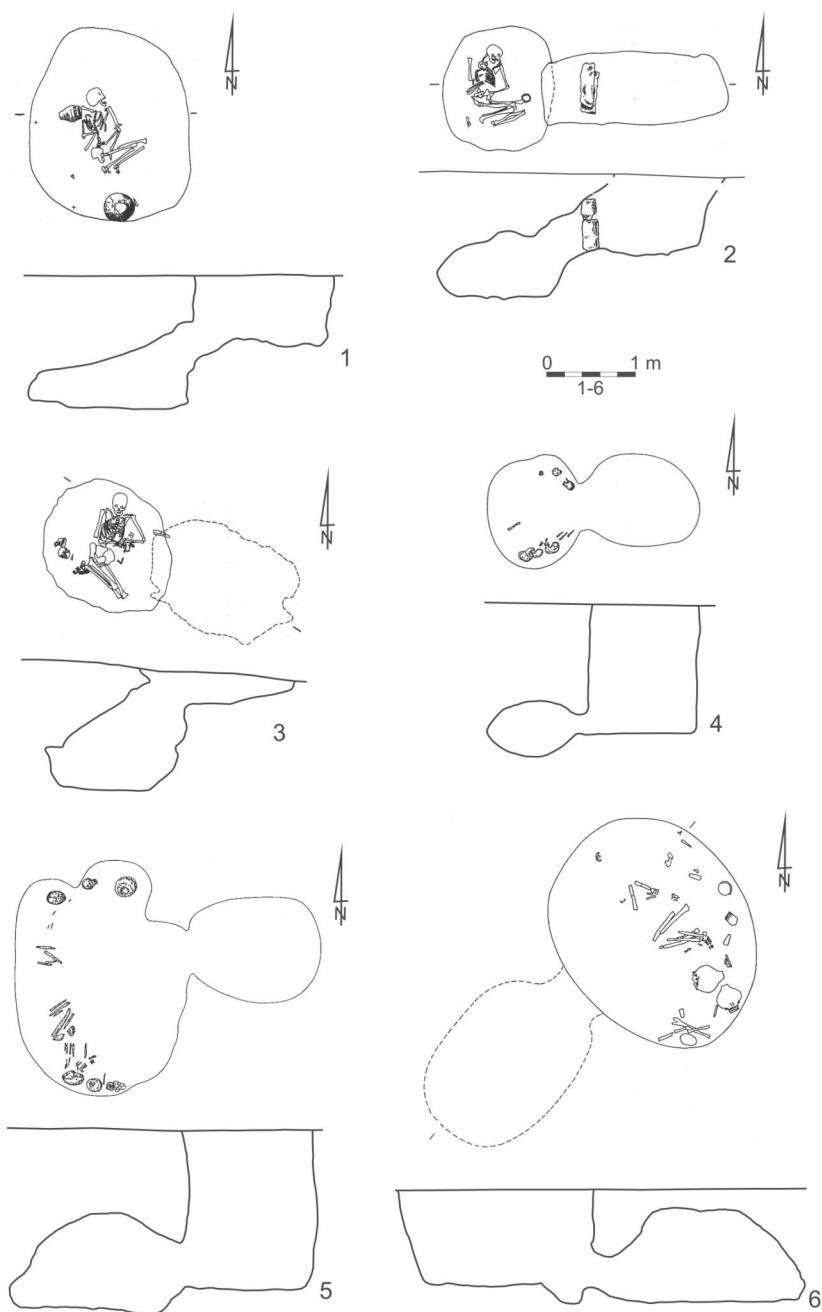


Fig. 7. Corded Ware culture catacomb graves from western Małopolska (1-3) and the Lublin Upland (4-6): 1-3 – Żerniki Górne (1 – grave 15, 2 – grave 93, 3 – grave 97); 4, 5 – Łubcze, site 25, barrow 2, graves 3 (4) and 4 (5); 6 – Hubinek, site 4, barrow 1, feature 2. [after Kempisty 1978, Machnik *et al.* 2009]



CWC horizon in Małopolska and with respect to the central graves of the Dniester-Danube YC. In the case of the CWC, this orientation is connected with the laying of the body on an appropriate side – depending on the sex of the deceased – discussed below. The principle of E-W orientation, however, does not apply to ZC graves contemporary with the older CWC phase.

A special variety of the ‘chamber’ grave is a niche (catacomb) feature. In the 3rd millennium BC, it became a permanent element of the funerary rites of Małopolska Final Neolithic communities (Fig. 7) and could be said to be a dominant grave type among both graves incavated into barrows and others located in flat CWC and ZC cemeteries. So far, only in two confirmed cases was a feature of this type the central grave (Miernów, barrow 2 and Pałecznicza, barrow 2).<sup>5</sup> Now, niche structures are known from three parts of Małopolska. The most numerous cluster and one explored the earliest is located on the left bank of the Vistula River, on the loess soils of western Małopolska and the Sandomierz Upland, which is associated with ZC rituals and those followed by the Kraków-Sandomierz group of the CWC. The second cluster is made up of CWC sites known from the Lublin Upland: from the Sokal Ridge [Fig. 7:4-6; Machnik *et al.* 2009: 244],<sup>6</sup> as well as from the eastern part of the Nałęczów Plateau [Lublin-Sławinek: Rejniewicz 2009]. The third cluster was identified only in recent years; it comprises sites from eastern Sub-Carpathia, especially from the Rzeszów Foothills [for instance sites in Mirocin, Święte and Szczytna; Machnik 2011]. In the light of these new discoveries, it can be concluded that also some graves discovered in Sub-Carpathia in previous years had been most likely designed in the manner discussed here (for instance features from Przemyśl and Siedliska), which means that the concept of the catacomb grave – analogous to North Pontic Area features – was adapted to the funerary rites observed in the vast area of south-eastern Poland. This was not – as believed earlier – a local variety, used by Final Neolithic communities only on the left bank of the Vistula, but a more widespread model and a dominating design type in the Late and Final Neolithic.

In spite of these new discoveries, Małopolska is still separated by several hundred kilometres from North Pontic Area sites with catacomb graves, lying further southeast. The closest cluster, a small one though, is found on the middle Prut River. Considering this, two genetic hypotheses have been discussed for a long

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<sup>5</sup> In terms of design, an analogous feature is also grave 42 from Żerniki Górne [Kempisty 1978: 50, 51]. The similarity here suggests that it was a central barrow grave, too [Włodarczak 2011: 224]. Another central barrow grave was possibly the one from Zielona, designated as feature 2 [see comments below].

<sup>6</sup> The authors of the publication have identified seven niche features [Machnik *et al.* 2009: 244]. A review of the published documentation justifies the belief that other graves were designed in the same way, too. Telling examples are offered by graves from barrow 1, Hubinek, site 3 and barrow 2, Lubicze, site 2 [Machnik *et al.* 2009: 11, 12, 48, Figs. 2:5, 3:1, 34:1]. Hence, on the sites from the Sokal Ridge, the catacomb design was often used and perhaps was the basic type in the case of graves dug into barrows.

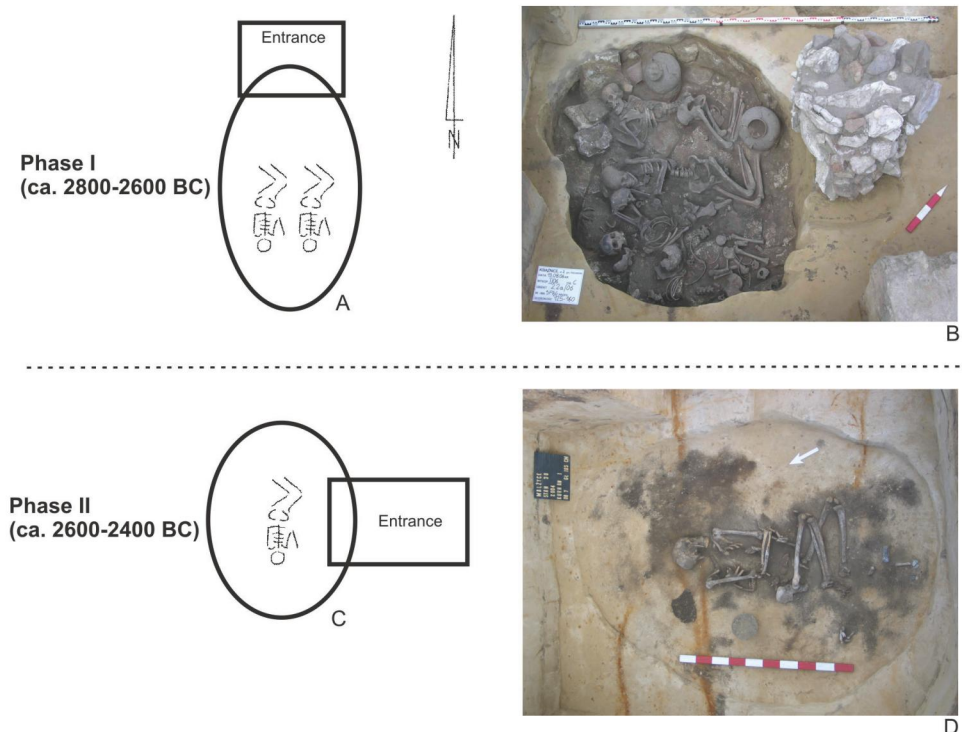


Fig. 8. Two generalized conceptions of catacomb graves in Małopolska: older Złota Culture (A, B) and younger Corded Ware culture (C, D). B – Książnice, grave 2/06 [Wilk 2013]. D – Małżyce, barrow 1, grave 7. Photo: S. Wilk, P. Włodarczak

time.<sup>7</sup> One assumes a connection to the North Pontic Area, while the other provides for independent local origins of the grave type under discussion. This could have taken place by convergence, with the new general concept of the grave, as an empty chamber holding a dead body, spreading across central Europe. The form of catacomb grave, typical of the younger CWC phases in Małopolska, bears much semblance to features from the North Pontic Area. This is particularly true for the general shape (a clear predominance of oval chambers), position of the entrance pit with respect to the niche (T-shaped layouts clearly dominate) and manner of use (most features hold single burials; only rarely are secondary intrusions into the grave chambers recorded). Similar structures are also characteristic of the CC [Kaiser 2003: 43-45; Ślusarska 2006: 68-71]. What else attracts attention is the

<sup>7</sup> The third hypothesis, tentatively tracing niche graves to the northern Balkans (see unique discoveries of graves in Vučedol), appears rather implausible – at least at the current state of knowledge [Kempisty 1978: 394].

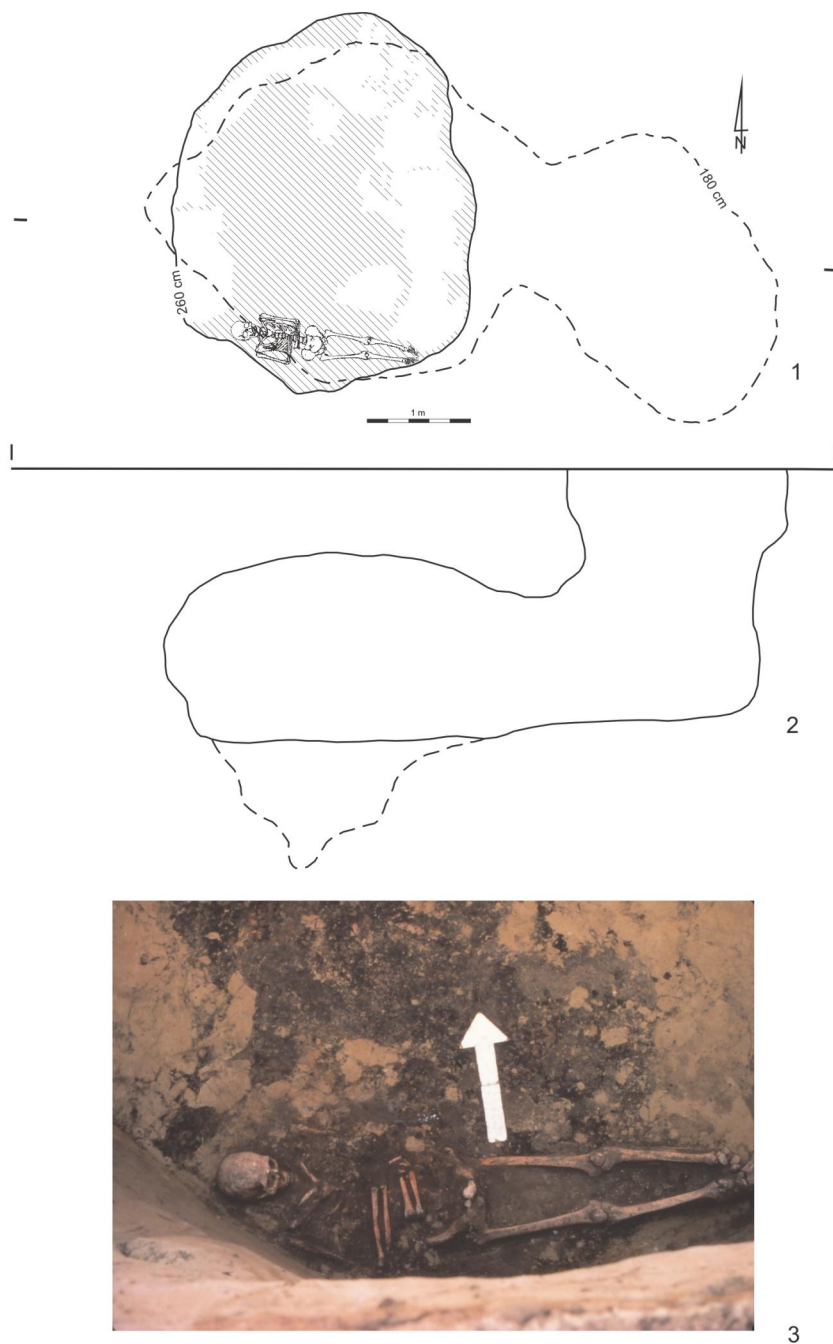


Fig. 9. Corded Ware culture barrow catacomb grave: feature 1 from barrow 2 in Pałecznicza [Liguzińska-Kruk 1989]; outline modified according to field documentation kept in the archives, Centre for the Archaeology of Mountains and Uplands IAE PAN, Igołomia

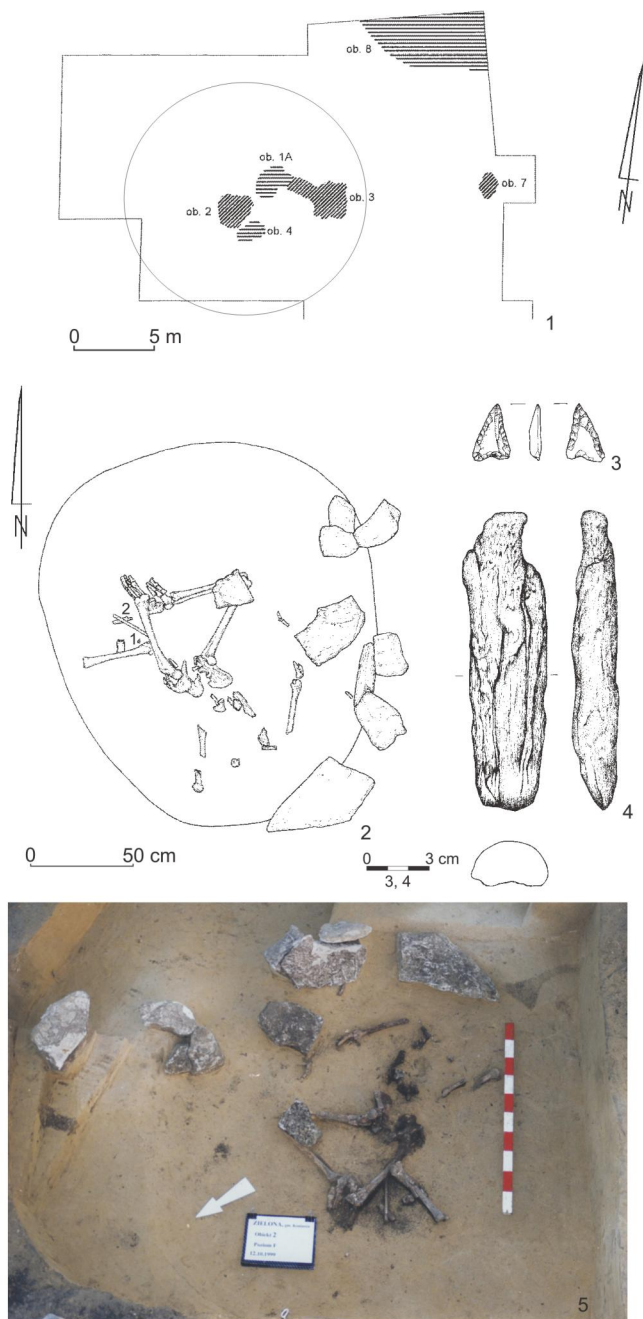


Fig. 10. Grave 2, site 3, Zielona [Włodarczak 2004] – probably a central barrow grave. 1 – fragment of the investigated part of the site with the approximate barrow range; 2, 5 – burial level; 3, 4 – artefacts found at the grave bottom



analogous diversification of catacomb graves in Małopolska and the North Pontic Area, including, for instance, rectangular or oval entrance pits, presence or absence of an entrance corridor and various means of blocking the entrance to the catacomb.

Various types of catacomb features are found in ZC graves [Włodarczak 2008a: 563-566; Witkowska 2013], as well as few known CWC barrow graves. In the case of the former, the difference concerns the very shape of graves (subrectangular chambers dominate), relative orientation of particular structural elements, scale and manner of the use of stones, and, finally, number of bodies and their arrangement (Fig. 8:A, B).

A chronological analysis of Małopolska assemblages indicates that Złota-type catacomb structures are older, which had been part of the funerary rites of Małopolska communities since ca. 2900-2800 BC. Only few CWC graves could be contemporaneous, including the barrow graves mentioned above. Catacomb grave shapes and the manner of their use must have undergone changes in the successive centuries of the 3rd millennium BC. Only after ca. 2600 BC did the classic CWC catacomb grave come to dominate. This already well-established dating of Małopolska grave structures poses difficulties for attempts to genetically trace them to the North Pontic Area. The first problem involves the chronology of peculiar Złota-type structures dated to ca. 2900/2800-2600 BC. For on steppes and forest-steppes, the concept of a YC grave gained popularity at that time. Although analogies between the catacomb graves of the North Pontic Eneolithic and of the ZC are quite close at times (the presence of multiple burials and the orientation of bodies with respect to the chamber entrance), at least a majority of east European features are dated to a considerably earlier period than that to which Małopolska structures are [second half of the 4th millennium BC – Rassamakin 2004]. Hence, it is hard to find good antecedents of Złota graves dated to the early centuries of the 3rd millennium BC.

CWC barrow catacomb graves in their design point to connections with ZC features. Their characteristic element, a long entrance corridor is either horizontal or slightly inclined (Fig. 9). Moreover, the dead buried in barrow graves were not orientated perpendicularly to the principal axis of the feature, as is the case with features dating to the younger CWC phases. It is likely that, apart from Mierńów and Pałecznicza, also in Zielona a catacomb grave was discovered which had been covered with a mound [feature 2 – Fig. 10; Włodarczak 2004] of which only a shadow on the ground has been left. In favour of this thesis would argue the grave design and body arrangement.<sup>8</sup> Thus, in the first half of the 3rd millennium BC, most likely ca. 2800-2600 BC, in western Małopolska, two parallel trends in the

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<sup>8</sup> In the monograph of the Zielona cemetery, no central grave was identified [Włodarczak 2004]. The barrow, however, was documented as a distinct circular shadow and was the reason for starting rescue investigations on this site. In the light of comparative analyses, it appears reasonable to amend earlier assessments and consider catacomb grave 2 as a central barrow grave.

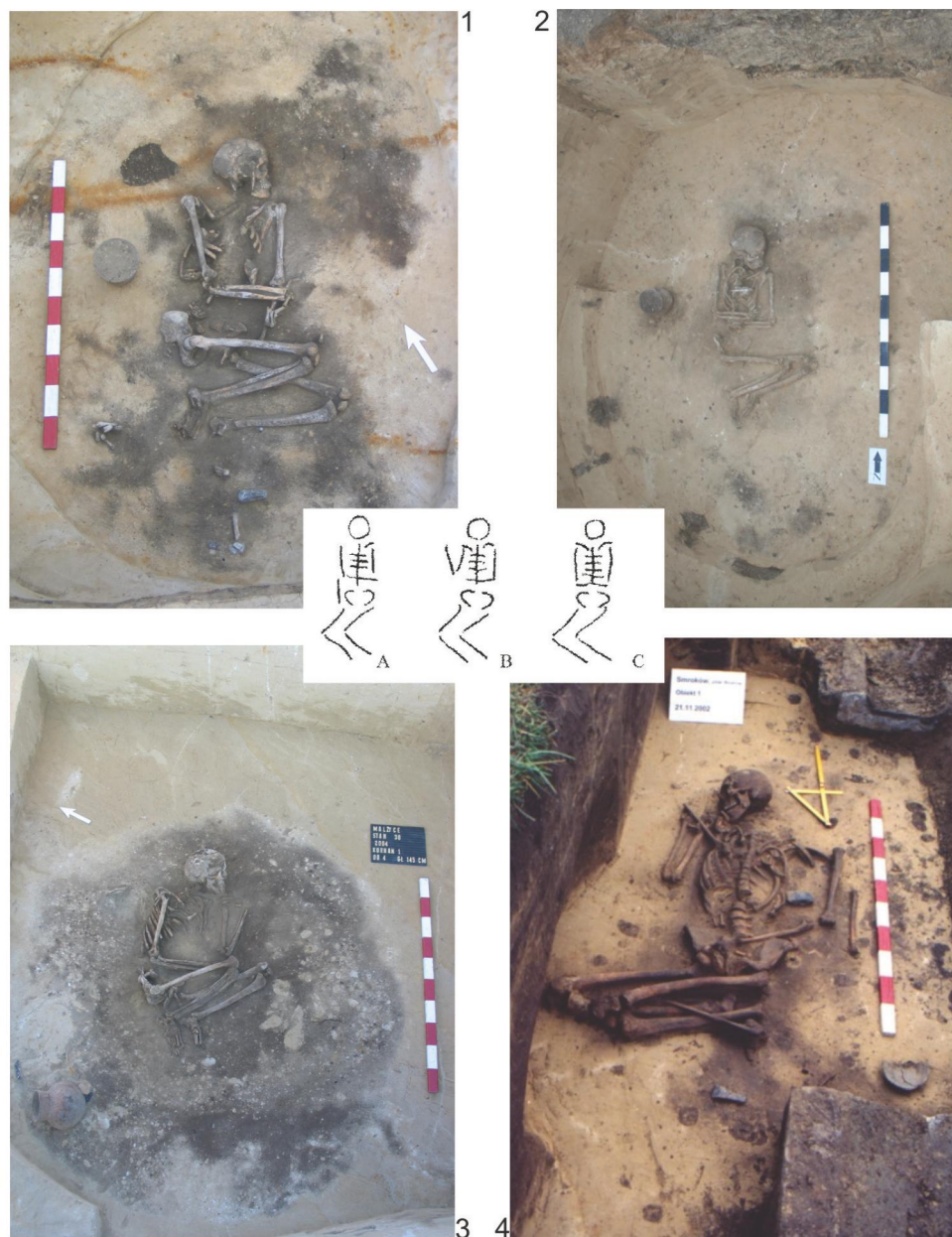


Fig. 11. Characteristic body arrangements in Corded Ware culture catacomb graves from Małopolska: 1 – Małżyce, barrow 1, grave 7; 2 – Małżyce, barrow 2, grave 12; 3 – Małżyce, barrow 1, grave 4; 4 – Smroków, grave 1. Photo: P. Włodarczak

funerary rites can be observed, both making use of catacomb graves: one derived from the Złota culture and the other which can be called 'old corded'. In both cases, the design of features differed from the design of catacomb graves from the younger CWC phases.

*Idea of the burial*

In comparison to the earlier period of the Neolithic, the funerary rites of the Małopolska CWC witnessed a far-reaching unification of burial arrangement as was the case with the YC [Rassamakin 2013]. The unification concerned body arrangement conventions and grave goods. Across south-eastern Poland, as a rule inhumation prevailed. The rite of cremation, recorded in various regions south of the Carpathians [Koško 2001], was adopted also by some CWC groups, for instance, in Bohemia and Moravia [Peška 2004; Šebela 2006: 101-103]. In Małopolska, no clear traces of this new ideology have been found; nor have they been found in any YC and CC cemeteries. In the late 4th and early 3rd millennia BC, in both the North Pontic Area and in the southern part of central Europe, cremation appeared to gain popularity (*see* Late- and Post-Baden circle as well as Sofievka group). In subsequent centuries, however, a clear turn towards consistent use of inhumation can be observed.

A distinct trait, visible in both regions under comparison, is the care shown in the arrangement of the body with special attention paid to the specific positions of the head, trunk and limbs. When compared to the earlier period, the respective conventions became more uniform, which is seen in clearly fewer recorded alternatives. In Małopolska, the binding rule was to place the corpse in a crouched position (with lower limbs bent at the hip, forming a right or an obtuse angle with the trunk, and at the knee, forming an acute angle with thighs). The supine position dominates (Fig. 11:1, 2, 4) with lower limbs and the head turned to the side. The arrangement of the upper limbs follows consistently specific patterns (Fig. 11:1-4) – usually patterns A-C according to Häusler [1974: 11, Fig. 1; Włodarczak 2006: 61]. A similar trend is also recorded in the North Pontic Area where, in comparison to the earlier Eneolithic period, we witness a considerable reduction of possible variations in rite conventions and the rise of strongly dominant corpse arrangements [Rassamakin 2013: 127-130]. The dead were laid in a crouched position on their back (noticeably more often) or their side (more rarely), i.e. similarly to the Małopolska CWC model. A clear difference, though, is the popularity of the arrangement with flexed lower limbs and knees not directed to the side but up. Furthermore, this burial type is closely associated with the older YC phase and recorded particularly often in central barrow burials. In Małopolska, in contrast, it is practically unknown. The only example of such an arrangement (probably) is grave 2 in Zielona – presumably a central barrow feature [Fig. 10; Włodarczak 2004: 312, Fig. 4].

The arrangement of upper limbs differs between the groups of finds compared here as well. For YC burials, the most characteristic arrangement is type F, fol-





Fig. 12. A burial from catacomb grave 21, site 8, Rudno Górne (unpublished investigations by Krzysztof Tunia). Photo: P. Włodarczak

lowed by types G and I; these arrangements involve the stretching of straight or slightly flexed limbs along the trunk. Such arrangements are only rarely recorded in Małopolska.

A special type of burial in Final Neolithic central European cemeteries is one in which a corpse lies with its knees drawn wide apart – in the so-called ‘frog-like’ arrangement (Fig. 12). Their examples are but few in particular regions; in south-eastern Poland, we know of only five such graves (four are associated with the CWC<sup>9</sup> and one with the Bell Beaker culture; all are located on the left bank of the Vistula). It is difficult to ascertain for certain if the dead buried in these features had their knees pointed up, after bending their legs, or if they were originally drawn apart. Whatever the answer is, the arrangement obviously differed from the pattern followed by local communities. Its uniqueness is supported by the arrangement of upper limbs (type I according to Häusler) – strongly departing from patterns followed in Małopolska. Hence, it is justified to search for any connection between these burials and the customs of YC communities, including the North Pontic Area where many analogies can be found.

The peculiar body arrangement mentioned above is related to the male sex and adulthood of the deceased. This is borne out by finds from other CWC groups [Chochorowski 1976; Schmidt-Thielber 1955]. In terms of orientation with respect to the points of the compass, and the characteristics of grave goods, the Małopolska graves discussed here can be considered local. They are included in the group of well-appointed male burials. Thus, it can be concluded that the peculiar body arrangement, associated with YC environment, had been incorporated into the funerary rites of the Małopolska CWC as an element emphasizing the status of the deceased. As of now, no results of specialist analyses are available that would help determine the origins of the individuals honoured in this way. A similar context is shared by an incidental occurrence of the ‘frog-like arrangement’ in a Bell Beaker culture grave from Samborzec on the Sandomierz Upland [Włodarczak 2008b]. In this feature, only the body arrangement indicates connections to the YC rites. The other characteristics are typical of burials assigned to the eastern branch of the Bell Beaker culture in central Europe.

With the domination of crouched burials, an interesting exception is offered by the central grave (no. 1) in barrow 2, Pałecznicza [Liguzińska-Kruk 1989: 117–119]. In a catacomb feature, in a relatively large chamber in comparison to other Małopolska graves (3.7 × 2.9 m), an extended skeleton of an adult man was discovered (Fig. 9:1). This burial is noticeably different from standard Małopolska burials in the catacomb size and body arrangement. For these reasons it is believed to be allochthonous; it has been suggested to be of eastern origin [Kločko, Koško 2011: 279, 280]. Into the Pałecznicza barrow, there were incavated CWC graves that

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<sup>9</sup> Only one of these graves (Żuków, feature 1(2)) has been described in any detail so far [Marciniak 1961]. The others (two niche graves from Rudno Górne and one central barrow grave from Kocmyrzów) have been revealed by investigations conducted on western Małopolska loess uplands by K. Tunia but have not been published yet.



referred to the older phase of the Kraków-Sandomierz group [IIIA – Włodarczak 2006], i.e. still to the first half of the 3rd millennium BC.<sup>10</sup> This narrows the possible chronology of the central grave: it can be associated only with older CWC horizons as well as the phase of Złota-type cemeteries. The body arrangement departs from standards known from Małopolska; the burial was placed at a chamber wall and orientated in the direction marked by the grave entrance. This practice finds analogies in ZC cemeteries where spacious niches were also discovered and gave an impression of being only partially used [Wilk 2013, Fig. 39]. The extended position of the deceased, however, is unique. In the CWC complex, there is only one known region of the concentration of graves (also barrow ones) with a similar arrangement of bodies: between the upper Boh and middle Dnieper rivers [Artemenko 1967: 60-64; Krywalcewicz 2007: 192, Plate 62].

Suggested by Artemenko, the chronological position of these burials was criticised by both Polish and Ukrainian researchers [Bunyatyan 2005: 27-34]. Its principal underpinning was the dating of a group of features with extended burials to the initial stage of the Middle Dnieper culture. With suitable data lacking, it is now difficult to determine the time range when the discussed body arrangement was practised. What seems important, though, is the suggestion that some materials of the Middle Dnieper culture mentioned here point to connections to the Inhul CC. The suggestion is supported by analogies in the style of artefacts [Bratchenko 2001: 49; Bunyatyan 2005: 34]. Absolute age determinations date Inhul CC finds to 2400-2200 BC [Kaiser 2009: 66], i.e. slightly later than the Pałecznicza feature. Assuming that there is a connection between the Małopolska grave and graves on the steppes of the right-bank Ukraine, we encounter a difficulty in synchronizing the phenomena under discussion. It must be observed, however, in this context that the problem of the inconsistency of absolute dating with the time when Inhul CC traits appeared in other cultural groups is encountered in other analyses, too [Gey 2011: 7]. Perhaps, this might be a result of the absence of the absolute age determinations of Inhul graves, assigned to the early CC phase [Telegin *et al.* 2003: 163-166].

Sprinkling bodies with ochre, a practice characteristic of the rites of North Pontic Early Bronze cultures, is found in Małopolska in single features only. Only once was it observed on the left bank of the Vistula: Koniusza, site 1, grave 3 [Tunia 1979: 50]. It has not been recorded in ZC cemeteries yet, while on the Lublin Upland the sprinkling of bodies with ochre has been recorded recently in the course of the investigations of a barrow on site 2, Hubinek, the Sokal Ridge.<sup>11</sup> Especially large amounts of ochre covered the skeleton from feature 9, encircled by a ditch. More often than in Małopolska, ochre was found in CWC graves in western

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<sup>10</sup> Recently, for grave 7 from this barrow, a radiocarbon date has been obtained: 4005±43 BP (Ua-48900), or 2571-2475 BC (1σ; calibrated using OxCal software v4.2.4.)

<sup>11</sup> Unpublished investigations by J. Bagińska and J. Libera.

Ukraine, i.e. areas closer to the North Pontic Area [Machnik 1979a: 55, 60]. Still more numerous, graves with ochre are found in Middle Dnieper culture cemeteries [Artemenko 1967: 61, 82]. In Małopolska, therefore, instances of its use merit special attention – as a distinctly foreign element in the local ritual.

#### *Idea of grave goods*

Most Małopolska CWC and ZC graves had goods found in them – contrary to the North Pontic YC where the incidence of graves with goods is distinctly lower. This fact alone indicates a clear difference between the systems of funerary behaviour under comparison. In addition, differences concern also typical grave goods (principal types of pottery). With the lapse of centuries, however, customs in both zones grew alike to a degree. This is shown by the qualitative description of goods in the graves of the CC, late ('Budzhak') phase of the YC in the Dniester-Danube zone and late phase of the CWC in Małopolska (Kraków-Sandomierz group). The convergence is also visible in graves stressing selected crafts connected probably with the chosen dead. Such graves began to emerge since about the middle of the 3rd millennium BC. In particular, inventories comprising weapons (including battle-axes and arrowheads) and tool kits merit attention. Such graves rich in goods represent only a small share. Important comparisons with the North Pontic Area are drawn, using categories of goods, newly appeared in the Final Neolithic, included in grave inventories such as (a) ceramic vessels, (b) stone battle-axes, (c) metal artefacts, (d) bone ornaments, and (e) flint artefacts. Only single artefacts from Małopolska graves, however, can be viewed as originating with the YC/CC circle.

What attracts particular attention in the case of CWC barrow graves in Małopolska is the high incidence of two kinds of grave goods: ceramic amphorae and flint blade knives. Relatively frequent goods include also beakers and stone battle-axes. In this respect, the situation is analogous to that in barrows in western Ukraine [Sulimirski 1968; Machnik 1979a] and at the same time different from the picture recorded in many other regions of the CWC complex (including in the Middle Dnieper culture). The foremost difference is the significant role played by amphorae in funerary rites. Amphorae are often the only kind of pottery found in graves or they form assemblages together with beakers. Their presence in funerary rites in this area is not an absolute novelty – considering the role of similar vessels in the GAC burial custom. Nevertheless, attention is drawn by the barrow context of burials with amphorae, lacking any older antecedents in central Europe. Such a context, however, is recorded in the North Pontic Area: in western Late Tripolie groups, especially in the Usatovo group [see Dergachev, Manzura 1991, examples in plates] and – slightly later – in the YC, too [Ivanova *et al.* 2014].

Squat amphorae with two handles on the maximum protrusion of the belly appear also in ZC graves and some display the traits of 'type A vessels' associated with the oldest CWC horizon [Machnik 1966; Krzak 1976]. Their size varies although medium and large ones dominate. In terms of style, too, they find good equivalents in the Dniester-Danube zone, dated to the late 4th and early 3rd millennia BC.

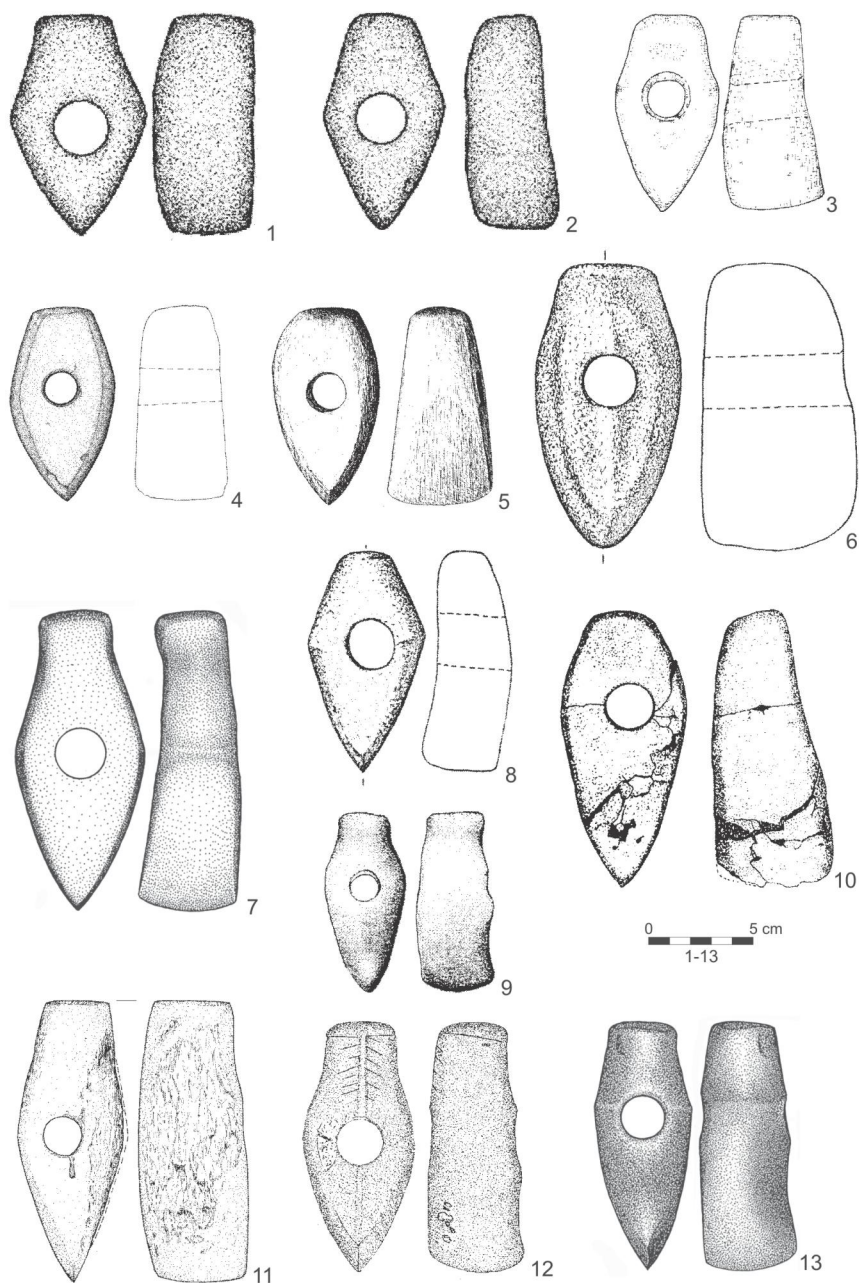


Fig. 13. Selection of Małopolska Corded Ware culture stone battle-axes: 1 – Tarnawce; 2 – Sierakońce; 3 – Wójcieszka, grave 2; 4 – Smroków, grave 1; 5 – Miernów, barrow 2, grave 2; 6 – Wygnańce; 7 – Wierszyczka, site 1, barrow 1, grave 2; 8 – Chutcze; 9 – Kichary Nowe, grave 26; 10 – Malice Kościelne, grave 30; 11 – Zielona, grave 3; 12 – Harta; 13 – Klekacz, site 10, barrow 1, grave 1. [after various authors]



As with amphorae, also other artefact categories found in Małopolska CWC graves may testify to a typological connection with goods from the North Pontic Area. The connection lies above all in a similar concept without documenting closer relationships by imports from areas settled by YC-CC communities. The relationships, however, merit attention because they are more numerous and closer than those with CWC groups located further west. A good example is offered by stone battle-axes, that is insignia-type objects, found in burials of men in central Europe. Taking into account the propositions of the chronology of the stylistic-typological changes of such goods in Małopolska [Machnik 1966; Włodarczak 2006]<sup>12</sup>, it can be seen that the concept of type A battle-axe and its modifications were soon abandoned. The path of typological development is thus less smooth than, for example, is the case with battle-axes in northern Europe. There emerge distinctly different forms such as Ślęża type battle-axes or specimens of type H, the most characteristic of Małopolska [Włodarczak 2006: 35, 36; these are at the same time type II battle-axes according to Machnik 1966: 42]. About the middle of the 3rd millennium BC, the vast majority of these artefacts are made up of stocky forms with a poorly marked or entirely unmarked butt (Fig. 13:1-6). In terms of general proportions, they are close to battle-axes known from the late YC phase but above all from the CC. A special aspect of this connotation is Inhul-type battle-axes recently identified in the Vistula drainage basin and in south-eastern Poland as well [Kločko, Koško 2011: 270-273].

In the descriptions of the changeability of Małopolska battle-axes, a conception of linear typological development has dominated so far whereby general European type A was claimed to be its initial link [Machnik 1966; Valde-Nowak 1988; Bronicki 1991; Włodarczak 2006]. Moreover, as a factor inducing changes was considered an effort to utilize older damaged forms [Bronicki, Kadrow 1998], producing less refined, short and stocky specimens. A significant, perhaps decisive cause of changes in the appearance of battle-axes could have been new inspirations from neighbouring cultural environments.

Raw-material analyses showed that many Małopolska artefacts had been distributed over long distances (serpentine and basalt goods). Battle-axes were made according to prescribed styles, which differed in particular regions of the CWC complex (for instance, distribution of faceted specimens or Ślęża type battle-axes). The described distinct stylistic change in the shape of Małopolska battle-axes may testify to the rise in the importance of relations with eastern European communities, without being a simple effect of the typological evolution of older forms. Considering the role of battle-axes as insignia-type objects (for which the context

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<sup>12</sup> These propositions are still not supported by any strong evidence in the form of accurately dated assemblages or suggestive stratigraphic sequences. Only the dating of type A battle-axes to the development of the ZC and an older CWC phase is well-grounded. The time when other types emerged is still hard to precisely determine; this concerns *inter alia* Ślęża type battle-axes and those of types D, F and H characteristic of Małopolska [Włodarczak 2006].

of their deposition in graves argues), one can assume that the choice of form and raw material of which they were made did matter as well. The growing popularity of squat forms (including Inhul-style battle-axes) may be a sign of the importance of contacts with eastern European communities for changes in stylistic preferences shared by Małopolska CWC populations. An interesting corroboration of the stylistic relationship is provided by the results of petrographic analyses of battle-axes from eastern Małopolska. The results show that for the most part they come from Volhynia [Gazda 2009].

Squat type-H battle-axes are known mostly from niche graves dated to about the middle of the 3rd millennium BC. In earlier assemblages, including barrow graves, larger and more slender forms are more numerous. There are also specimens resembling forms known from YC graves [Fig. 13:13; Subbotin 2003, Plate 11-14]. Thus, between the North Pontic Area and Małopolska, there is some parallelism in the chronology of stylistic changes affecting stone battle-axes. Specifically, at the younger stage of the CWC development, these tools take on shapes similar to the artefacts known from CC graves.

A separate question concerns the presence of Ślęża type battle-axes in Małopolska CWC graves. They are encountered chiefly in the assemblages of the Kraków-Sandomierz CWC group (8 graves), while only a single specimen comes from the east (Siedliska, Przemyśl District). Raw-material analyses show that these artefacts were made of rocks originating from Silesia, mainly serpentinite [Wojciechowski 1988]. Although it is possible to point to stylistic connections between these goods and the output of eastern European communities [including copper axes; Włodarczak 2010: 311, 315], the location of their manufacture rules out any direct relations with the North Pontic Area. One of the leading types of Małopolska battle-axes demonstrates, therefore, a different direction of relations. Consequently, it can be assumed that ca. 2600-2400 BC, Małopolska stone battle-axes had two major models: Ślęża type and squat type H (with eastern European connections suggested here). The North Pontic model, of interest here, is thus an alternative of increasing popularity and dominant in the Early Bronze Age in Małopolska (to which Mierzanowice culture battle-axes testify).

Compared to other central European regions, Małopolska, in terms of composition of CWC grave assemblages, has the highest share of metal artefacts. These are mostly ornaments (chiefly earrings and copper wire necklaces) and rare tools as well (awls, copper punches and in a single instance – a shaft-hole axe). Metal goods are found in all Małopolska local groups, with their highest share in grave inventories being recorded in the Kraków-Sandomierz group (14.1%). The scale of the phenomenon, as well as typological assessments of finds, points clearly to connections with eastern Europe, including above all areas settled by the Middle Dnieper culture and the YC. Nevertheless, the local character of metalworking is emphasized as well. It is noticeable in the only more numerous group of finds: spiral earrings. In south-eastern Poland, a dominant position is held by objects made

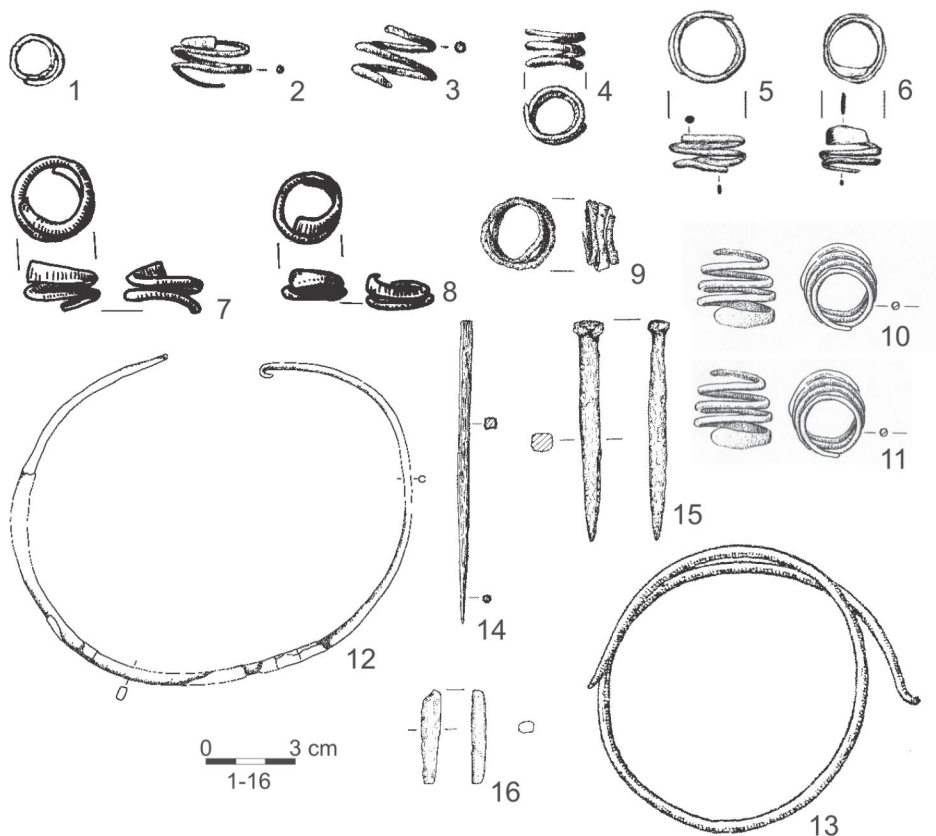


Fig. 14. Principal kinds of metal artefacts from Małopolska Corded Ware culture graves. 1-11 – earrings; 12, 13 – necklaces; 14-16 – punches. 1-9, 12-16 – copper; 10, 11 – gold. 1 – Bosutów; 2, 3 – Mierzanowice, grave 83; 4 – Mierzanowice, grave 81; 5, 6 – Lublin-Sławinek, grave 3; 7, 8 – Żerniki Górne, grave 78; 9 – Żerniki Górne, grave 137; 10, 11 – Kichary Nowe, grave 29; 12 – Klekacz, site 10, barrow 1, grave 1; 13 – Daromin, grave 1; 14 – Kolosy, barrow 1, grave 4; 15 – Zielona, grave 3; 16 – Małyce, barrow 1, grave 2. [after various authors]

of thin wire, with three or four coils, one end flattened and the other sharpened [Fig. 14:1-11; Kempisty 1982: 68; Włodarczak 2006: 40, 41]. These are made mostly of copper and in one case of gold (Kichary Nowe, grave 29) and differ from ornaments found in the graves of the North Pontic YC [Subbotin 2003: 227-229, Plate 44-46], and the Middle Dnieper culture as well [Artemenko 1967: 37]. Still different are also earrings discovered in YC graves in the southern Carpathians and northern Balkans [Nikolova 1999: 306, 307].

What needs to be emphasized, however, is the consistency of the overall concept of this special kind of ornaments and the way they were deposited in graves



(above all male but female as well). Compared to single assemblages known from other CWC regions, a large number of graves with earrings found in south-eastern Poland stands out (42 ornaments in 24 graves). Hence, it seems justified to point to a stylistic inspiration with regard to body ornamentation taken from YC communities by the groups of the south-eastern branch of the CWC complex. In the category of ornaments, this relationship is corroborated by the presence of analogous bone goods in the Małopolska CWC and in YC and CC graves, including mainly oval beads made from red-deer teeth (including so-called ‘butterfly pendants’) and pendants made from dog, wolf or fox teeth [Kaiser 2003: 209, Fig. 76:2-10; Subbotin 2003: 221, 222, Plate 38 and 39; Włodarczak 2006, Plate XXVII:10-16]. Such ornaments are also found in ZC graves [Krzak 1976: 148, Fig. 70:b, d], which have not yielded so far any analogous copper earrings discussed above. In terms of chronology, a conclusion can be drawn that from ca. 2600 to 2400 BC, when cemeteries with niche graves dominated, there were similarities in ornament kinds between the YC, CC and CWC, with metal earrings being the most telling example.

Other forms of metal artefacts also resemble goods known from the North Pontic Area and areas settled by Middle Dnieper culture communities. These are for instance: necklaces [Fig. 14:12, 13; four examples from Małopolska; Artemenko 1967: 33, Fig. 22:3-6; Subbotin 2003: 226, Plate 43:21, 23], a diadem of bent plates unearthed in unpublished grave 5, Kocmyrzów, Kraków District<sup>13</sup> [Subbotin 2003: 231, Plate 48:38-50], and a small knife-like form from grave 138, Żerniki Górne [Włodarczak 2006, Plate XCI: 6]. Moreover, as in YC-CC graves, also in Final Neolithic Małopolska graves holding male burials, there were copper awls/punches/fabricators discovered (7 instances – Fig. 14:14-16).

In the late 4th and early 3rd millennia BC, noticeable standardization of metal goods manufacturing took place in the North Pontic Area and the Carpathian Basin and Balkans, which has found expression in the conception of a ‘Circum-Pontic metallurgical province’ [Chernykh 1978b]. The presence of similar artefacts both east and south of Małopolska makes it difficult to trace how metal goods circulated in the area under discussion. A related problem involves the role of migrating YC communities and the Pre-Yamnaya phase in the spreading of new goods in the drainage basin of the middle and lower Danube. Assuming that their role was decisive and adopting the dating of these processes which makes them precede the rise of the CWC [prior to ca. 2800 BC; Horváth *et al.* 2013: 166, Tab. 4], it is plausible to claim that the style of particular Małopolska Final Neolithic goods (dated to ca. 2600-2400 BC) could have been inspired by various neighbouring cultural circles from both the south (primarily from the Carpathian Basin) and the east. Observing the multi-directional relations of Final Neolithic CWC communities, it cannot be ruled out that particular metal goods had different origins. Taking the set of Małopolska artefacts as a single whole, one may note that the traits closest to it

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<sup>13</sup> Investigations by K. Tunia.

are shown by finds from the circle of the Middle Dnieper culture. This assessment helps to include the metalworking of south-eastern Poland in a broader complex together with the North Pontic Area.

In the context of connections with Early Bronze Pontic Area cultures, questions of flint working appear to be significant, too. In Małopolska, the share of flint artefacts in grave inventories is high when compared to that in other regions and what attracts attention is the diversity of recorded categories (axes, arrowheads, various blade and flake tools, blanks). The foremost position in grave goods is held by stone axes, especially numerous in the assemblages belonging to CWC younger phases. Many finds are made of regular knife insets fashioned from blades or slender flakes. Neither of these artefacts is found often among goods in YC and CC graves; if they are, they are taken to be evidence of relations with GAC/CWC communities [Razumov 2011: 145-147]. Of primary importance in this context was the fact that North Pontic Area communities used high quality flint materials from Volhynia and western Podolia, i.e. regions settled by the two last-named cultural groups.

In Final Neolithic grave inventories from Małopolska, flint arrowheads are found. In the first half of the 3rd millennium BC, they are recorded in CWC barrow graves (rarely) and also in ZC cemeteries [quite often: 162 items from 48 graves – Witkowska 2013]. Their incidence grows around 2600/2500 BC. The same period witnesses also rich sets of points (the largest – from grave 15, Wilczyce – comprises 30 items). The latter are related to the burials of adult men; as a rule they are a component of rich and varied inventories. Equipping the dead with archer's gear is a new tradition in Małopolska – graves with arrowheads are not encountered either in the GAC circle or in the Baden culture. Likewise, the tradition is not observed either in western or northern CWC regions (from there, we know only of single features with arrowheads). In these areas, archer's equipment became a frequent component of grave inventories only after ca. 2400 BC and is associated with assemblages displaying the tradition of the Bell Beaker culture. Thus, Małopolska inventories with arrowheads are older than such assemblages by about 200-300 years.

In the early centuries of the 3rd millennium BC, Małopolska grave assemblages are dominated by triangular bifacial arrowheads (Fig. 15:1-3, 6-10, 12-16, 20, 21). They absolutely dominate in ZC inventories [82%; Witkowska 2013]. Next to them, there are also shallow-hollow-based arrowheads (Fig. 15:4, 5, 11, 17, 19, 22-33). The latter dominate in a small group of arrowheads coming from barrow graves [Niezabitowska-Wiśniewska, Wiśniewski 2011: 341, Fig. 11:1-6]. Whereas in ca. 2600-2400 BC, domination is won by deep-hollow-based arrowheads with the hollows being either triangular or arched-rounded (Fig. 15:34-68; 19:6-15). It is this type of artefacts that are part of rich assemblages (of 6-30 items). Shallow-hollow-based arrowheads are few while triangular ones are encountered only incidentally. Only a small portion of CWC arrowheads was found in the midst of

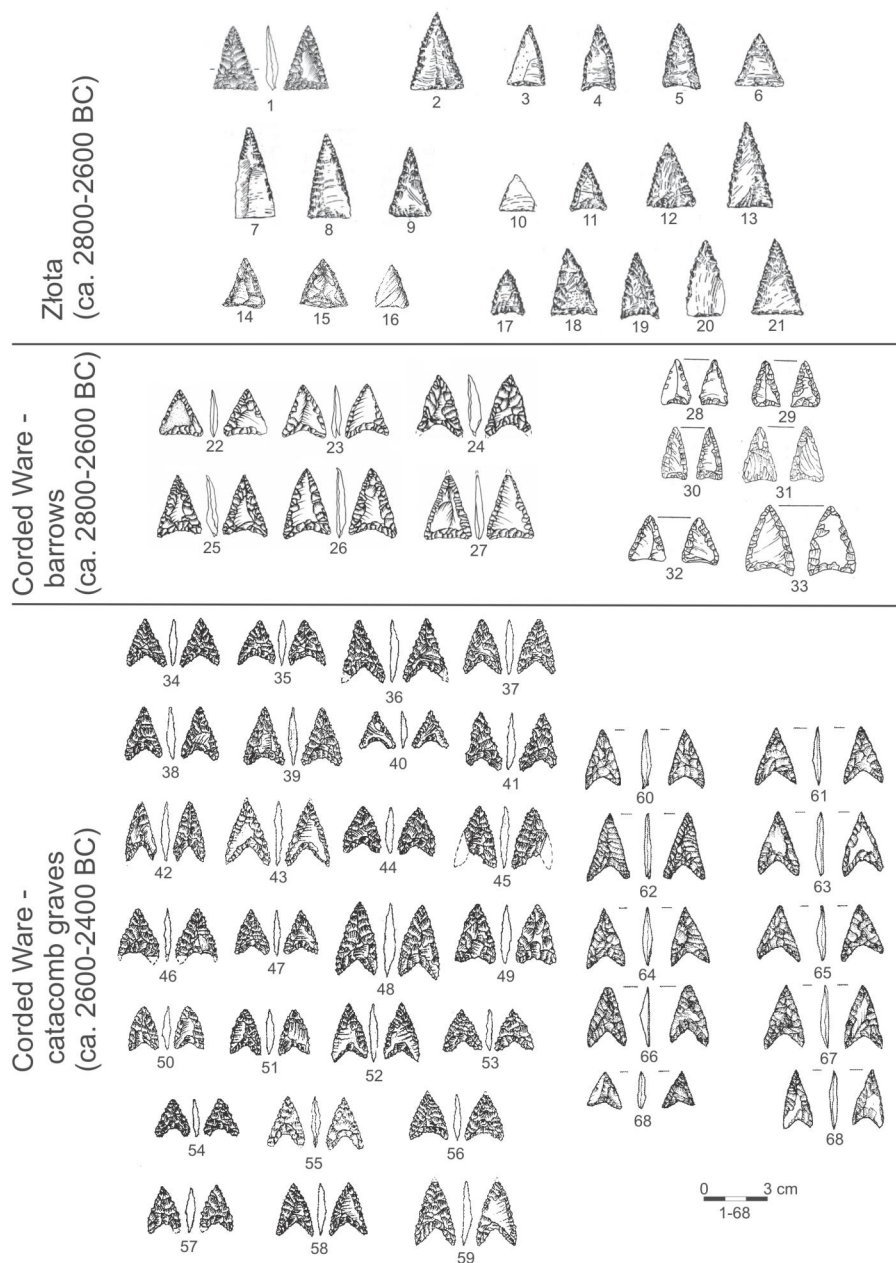


Fig. 15. Arrowheads from Małopolska Decline Neolithic graves: 1 – Sandomierz; 2-6 – Złota, “Nad Wawrem”, grave 9; 7-9 – Złota, “Nad Wawrem”, grave 28; 10-13, 17-21 – Złota, “Nad Wawrem”, grave 97; 14-16 – Samborzec, grave 12; 22-27 – Ulów, barrow 1, grave 95/1; 28-33 – Bierówka, barrow B, feature 4a; 34-59 – Mydlów, grave 2; 60-68 – Zielona, grave 3. [after various authors]



skeleton bones, which could be evidence of injuries they inflicted. Points which caused the death or injury of buried individuals represent a considerably higher percentage in the case of YC graves [Razumow 2011: 77]. Such points are also often found in ZC graves, but in this case the nature of the funerary ritual (frequent bone redepositions) prevents certain identification. Assemblages appearing at CWC burials after ca. 2600 BC, found in the greatest number in the Kraków-Sandomierz group, are thus of a clearly different nature: they are grave goods of the deceased. Furthermore, a high share of graves with projectile-point assemblages in the group of male burials testifies to the great importance attached to archer's equipment in the rituals of Małopolska communities, representing a younger phase of the Final Neolithic (CWC but also the Bell Beaker culture).

While graves with projectile-point assemblages are very rare in the YC, they are encountered much more often in CC features [Razumov 2011: 78-82]. They represent rich grave goods deposited in adult-male graves together with other weapons (above all battle-axes), tools and blanks. There is a clear analogy observable here with rich inventories known from the Kraków-Sandomierz group and with newly discovered burials from the vicinity of Jarosław (Mirocin, Szczytina). Małopolska CWC assemblages with projectile-point sets are at the same time similar to Dnieper culture finds. Specifically, a striking typological similarity is observed in the case of points forming part of the richest grave goods [Artemenko 1967: 85, Fig. 47]. A corroboration of this observation comes from an analogous type of arrowheads recorded in a Małopolska Middle Dnieper culture grave in Młodów-Zakęcie (Fig. 19:6-15). After ca. 2600 BC, arrowheads from rich inventories show technological advancement and are aesthetically refined. An analogous change takes place in the North Pontic Area as well.

The changes of Małopolska projectile-point forms (from triangular to hollow-based) are a consequence of the increasing effectiveness of archer's equipment. A similar evolution affected points recorded in the Balkans and the Aegean [Ivanova 2008: 54, 55]. What is more, it can be assumed that the spreading of new models of weapons both north and south of the Carpathians is related to the ties with North Pontic Area communities. What set Małopolska apart was a rather early inclusion of arrowheads in the group of principal male-grave goods – ca. 2800 BC for ZC graves. Their incidence grew after ca. 2600 BC in the assemblages of younger CWC phases and in the Middle Dnieper culture. Similarly – in a younger YC phase – assemblages with sets of arrowheads appeared in the YC [Razumov 2011: 77].

An issue concerning relations with the North Pontic Area is the emergence of graves of specialists – 'craftsmen' [Bátora 2006: 55-120]. Features suggestive of specialized activity by the deceased are above all related to the end of the Final Neolithic (Bell Beaker culture) and the beginnings of the Bronze Age in central Europe. In the case of Małopolska CWC, there is only one type of inventory suggestive of specialized manufacturing. Niche graves have yielded sets of bone,

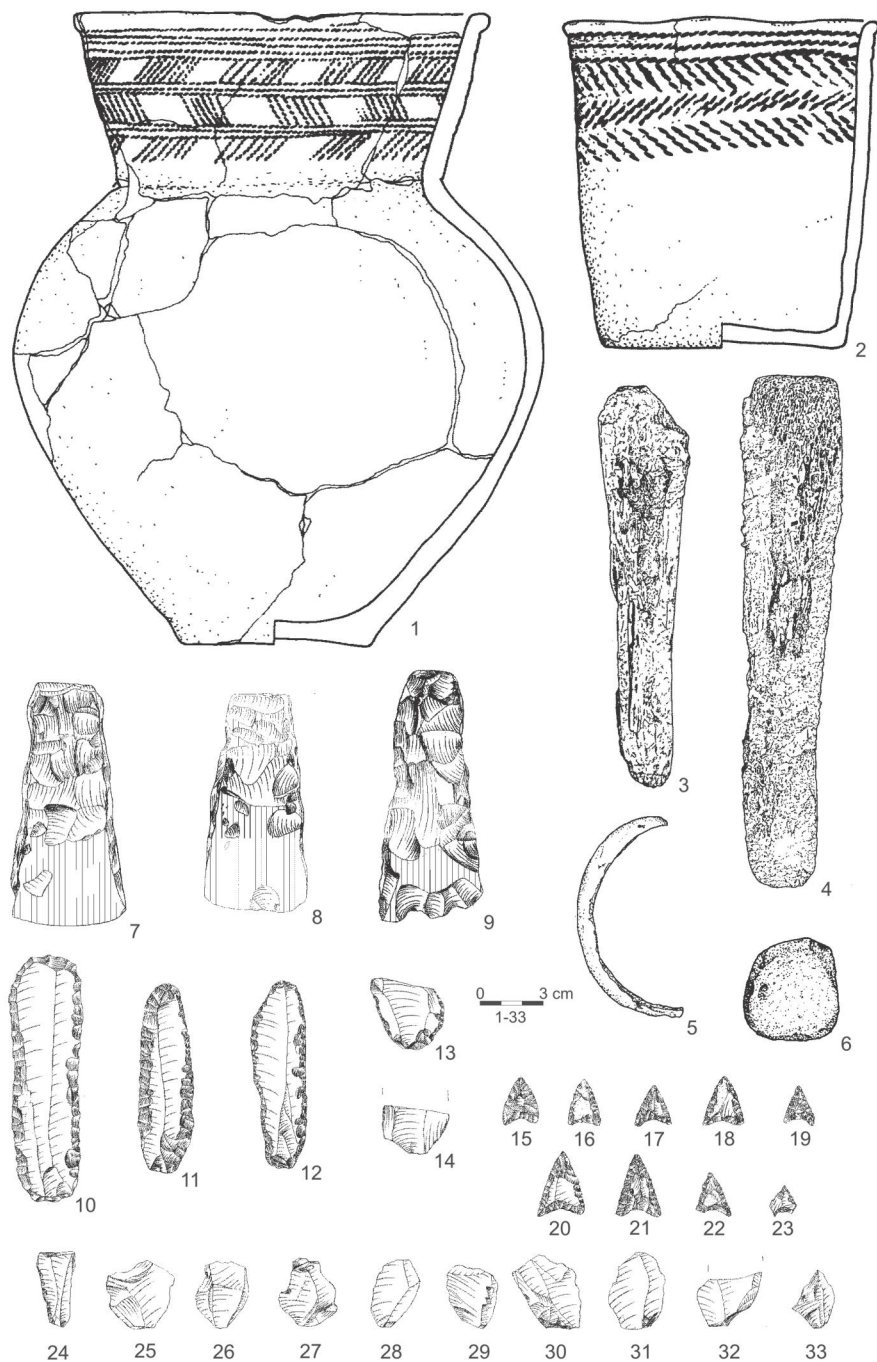


Fig. 16. A typical richly-appointed burial of a male adult from a Małopolska Corded Ware culture catacomb grave: Małyce, barrow 2, grave 10. [Jarosz *et al.* 2009]

antler and copper tools, most likely used in flint working, which are sometimes accompanied by depots of flakes and splintered pieces. A subgroup that stands out consists of graves of arrowhead makers [Budziszewski, Tunia 2000]. A constant trait observed in these features is the co-occurrence of tools and weapons (arrowheads and battle-axes) with other grave goods (vessels and ornaments) present as well. Elements of tool kits therefore are present in the graves of the GAC, ZC, and older, 'barrow' phase of the CWC already in the first half of the 3rd millennium BC. In the younger phase of the CWC importantly, the kits are visibly enriched and standardized. Inventories associated with specialists – flint workers are also known in the YC and CC [Razumov 2011: 121-128]. While in comparison with Małopolska assemblages their composition is sometimes different [Razumov 2011: 147, 148], the overall principle is similar. In the North Pontic Area, there are also sets of artefacts indicating other specializations.

Hence, an impression is conveyed that the ritual of Małopolska CWC is more about stressing the 'male' attributes of the deceased and less about indicating specific spheres of their earthly activity (Fig. 16). The graves of specialists-craftsmen in YC-CC barrow cemeteries are, however, exceptional and represent a small percentage of all features. More often – as is the case in Małopolska – there are graves equipped in weapons (male goods). The qualitative analysis of grave goods does not, therefore, argue in favour of any clear ideological differences between the systems of the Małopolska CWC and YC-CC. A similar accent – distinguishing a special class of male graves with weapons and tool kits – indicates the possibility of a common inspiration of belief systems in both cultural environments.

### 3. NEW DISCOVERIES

A new contribution to the discussion of relations with YC-CC communities has been made by recent discoveries in the vicinity of Jarosław, Rzeszów Foothills, in the course of rescue investigations preceding the construction of a motorway. In the area of the culmination of local uplands, a discovery was made of a group of CWC cemeteries; the most important are: Mirocin, sites 24 and 26, Szczytna, sites 5 and 6, and Święte, sites 11 and 15. The cemeteries have not been fully published yet – we know only their preliminary and catalogue descriptions [Czopek 2011; Machnik 2011]. A more detailed description has been published only of a grave especially interesting for the questions discussed here, namely feature 1149B, site 11, Święte [Koško *et al.* 2012].

*Święte, site 11, grave 1149 and feature 1149B*

Grave 1149 in Święte was a classic Małopolska niche feature with the de-

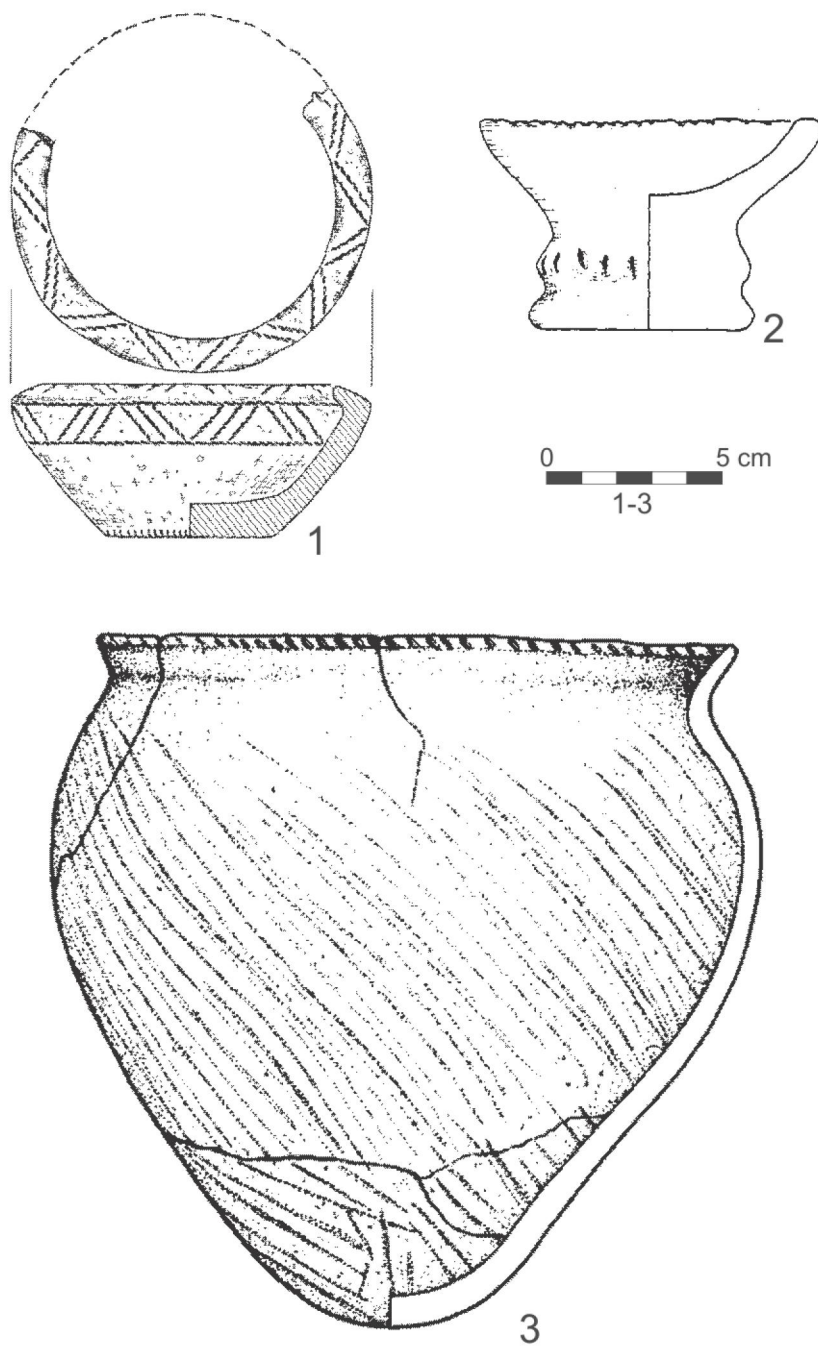


Fig. 17. Artefacts showing Yamnaya culture traits retrieved from Corded Ware culture cemeteries. 1 – Koniusza, site 1, from a destroyed grave; 2 – Balice; 3 – Święte, site 11, feature 1149B. [after Jarosz, Machnik 2000; Koško *et al.* 2012; Tunia 1979]



ceased (an adult man) arranged and orientated in a manner typical of local customs and grave goods having a typical qualitative composition. Above the niche, a pointed-base pot was found, connected without doubt with North Pontic Area communities (Fig. 17:3). According to a probable interpretation offered by the authors of the publication, the pot was found in a small pit of a sacrificial nature (feature 1149B) connected to the grave (i.e. from a so-called *trizna* or funeral festivity). In the immediate neighbourhood of the feature, no traces of a barrow have been found, nor any finds related to other prehistoric periods. The potential presence of a barrow is not supported by the location of three CWC graves, making up a rather loose cluster [Koško *et al.* 2012: 69, Fig. 2]. There is no feature showing the characteristics of a barrow grave either.

Sacrificial deposits located outside a feature holding the body are only rarely found in south-eastern Poland. Finds of single vessels in small pits were recorded in several western Małopolska barrows (Koniusza, Malżyce and Pałecznicza). Whereas in Carpathian Foothill barrows, vessels were recorded above the burial level [in graves in Średnia, Dynowskie Foothills – Machnik, Sosnowska 1996; 1998]. Moreover, in CWC cemeteries, besides graves, there are also other structures (including hearths and simple furnaces), related to some unspecified funerary rites. The complex of features 1149A and 1149B in Święte is thus a manifestation of a more common custom of carrying out manipulations not only at the very burial but also in the immediate surroundings of its deposition. This is also a reflection of the inventory of funerary behaviour of YC-CC communities.

The vessel from feature 1149B shows stylistic and technological connections to pottery recorded in the north-western YC variety and finds best analogies on sites located between the Boh and Dnieper rivers, including above all the forest-steppe [Koško *et al.* 2012: 68-73] and the north of the steppe. Good examples are finds from the vicinity of Uman [Bunyatyan, Nikolova 2010: 39-42], from the middle Inhulets River [Melnik, Steblyna 2013: 45, Fig. 30:1-3, 5, 19] or from Kirovohrad [Nikolova 2012: 22, Fig. 11:2]. A particularly interesting situation is implied by the presence of pots having similar typological and technological traits in a cluster of barrows in the Lypovets Region, on the left bank of the middle Boh River, including Jackowica [actually Dolinka; Bydłowski 1905, Plate V] and Nowosiółki [Głosik 1962, Plate XXV: 2]. The cluster was found to hold graves displaying the traits of both the YC and Middle Dnieper culture. Although the question of chronological relationships between the features as well as entire barrows associated with the cultures named here still remain underspecified, it is very likely that there was a zone within the CWC complex (together with the Middle Dnieper ‘branch’) where contacts with YC/CC communities were particularly intensive. The contacts are borne out by the discoveries of many goods (including pottery), associated with the last-mentioned cultural environments.

The pot from Święte is an exceptional find. In the group of ZC and CWC finds under discussion, there are only two other vessels showing traits strongly indica-





Fig. 18. Koniusza, Proszowice District, site 1. Bowl from a destroyed grave. Photo: E. Włodarczak

tive of their origin from the YC-CC circle. One of them was retrieved from barrow VII in Balice. It is a type of small incense burner with horizontally cut-off and thickened lip, found in an unclear stratigraphic context [Fig. 17:2; Jarosz, Machnik 2000: 114, Fig. 4:a]. Similar forms are present in YC assemblages from the North Pontic Area; they differ, however, from typical CC censers [Kaiser 2013: 145-148]. The other artefact is a bowl with a thickened rim recovered from a destroyed grave in Koniusza [Fig. 17:1; Tunia 1979: 72, Fig. 20]. It has already been associated with the North Pontic Area [Machnik 1997b: 163, 164].

No vessel showing YC/CC traits has been found so far in a definitive assemblage together with ZC or CWC artefacts. It can only be presumed that the context of their deposition was analogous to that of GAC and CWC vessels discovered in the North Pontic Area [Ivanova *et al.* 2014] – meaning they were incorporated into local rituals.

#### *Szczytna, site 6, grave 4*

A key feature for the present discussion, niche grave 4, site 6, Szczytna, has rich grave goods [Czopek 2011: 243-251; not been fully published yet]. Typological assessments help date it to the middle of the 3rd millennium BC. Its exceptionally rich inventory comprises a set of copper goods, including a necklace, shaft-hole axe with a one-sided cutting edge, two punches and three earrings. These artefacts for the most part have no close analogies in CWC materials from Małopolska. Only the necklace represents a type of ornament known from several other graves on the Małopolska Upland and the Sokal Ridge. The other objects have better counterparts in adjacent lands, including the North Pontic Area. A type of copper earring is a case in point [Czopek 2011: 251, Fig. 64.18]. It differs from forms characteristic of Małopolska assemblages, ones made of thin wire with one end flattened and the other sharpened. Whereas, ornaments in the type of Szczytna earrings, relatively thick in cross-section and made of various non-ferrous metals are often found in YC graves both on the Black Sea and in the Carpathian Basin, but are not particularly characteristic of this culture [Nikolova 1999: 305-307, Fig. 15.7]. Neither the copper punches of the Szczytna tool type have been known from Małopolska CWC graves so far. A similar category of goods comprises pointed tools ('awls'), retrieved from two graves in western Małopolska [Włodarczak 2006: 40].

A unique component of the Szczytna grave goods, a copper shaft-hole axe is an exceptional find on the scale of central Europe. Some of its traits (a flat upper surface and only a slightly marked proximal part) point to a similarity with some artefacts discovered in the well-known deposit from Vâlcele (Baniabac), Transylvania [Bátora 2003: 14, Fig. 11]. Above all, however, the shaft-hole axe shows affinities with forms included by V.I. Klochko in the Podlissja type [2001b: 247] to which he also classified two other Sub-Carpathian shaft-hole axes: from Munina and Rudna Mała [Gedl 2000]. Typologically close forms are encountered in western Ukraine, in areas settled by the CWC, including the Middle Dnieper culture. Some specimens have fluted butts, which suggests that they ought to be dated to

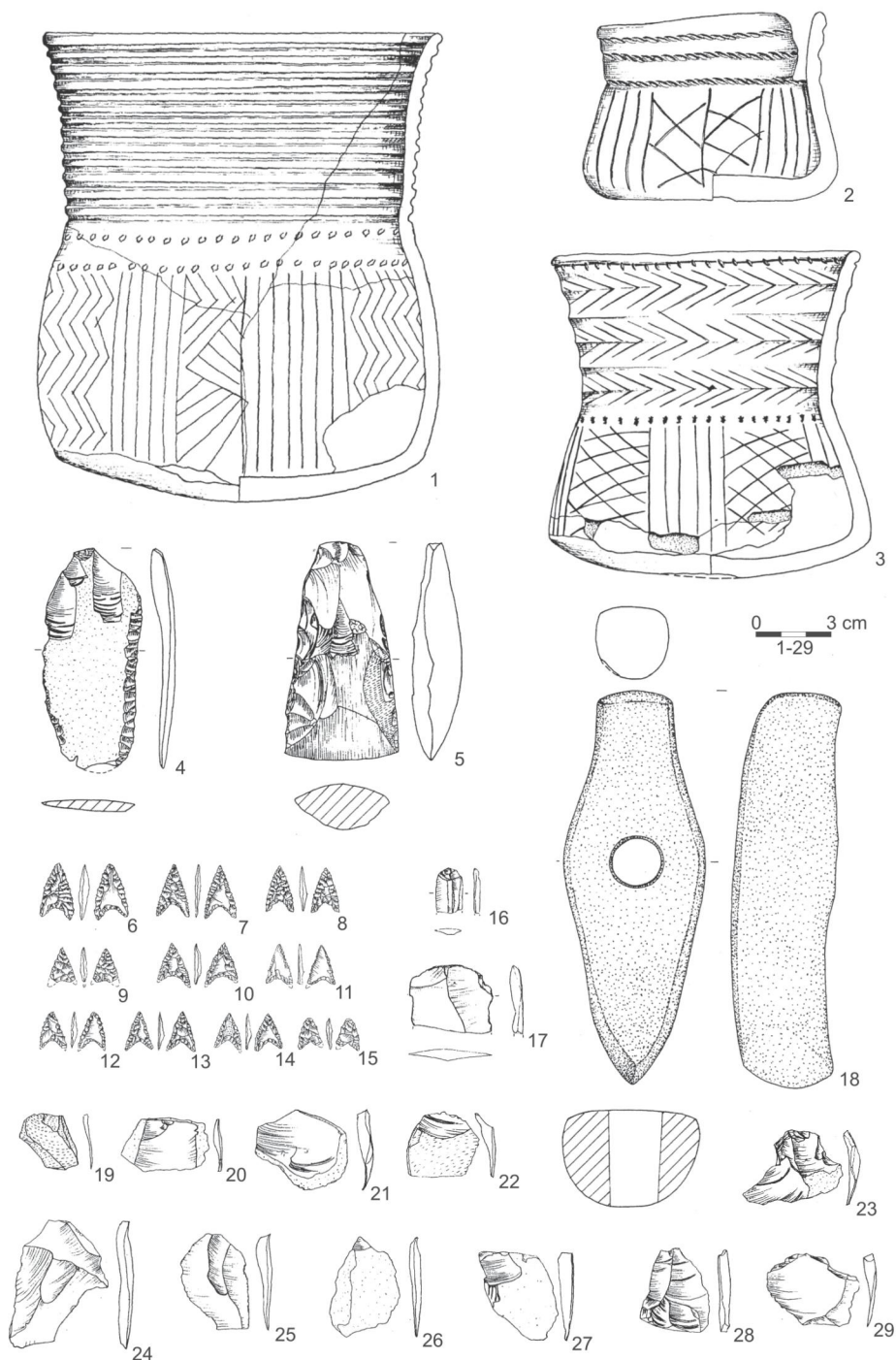


Fig. 19. Młodów-Zakęcie. Inventory of a damaged grave [Machnik, Pilch 1997]



a later period than the beginning of the 3rd millennium BC [Klochko 2001b: 248, Fig. 5:6, 7; 256, Fig. 10:7].

In the Szczytna grave, the copper shaft-hole axe was deposited in a manner analogous to that of stone battle-axes. Interestingly enough, copper one-sided cutting-edge shaft-hole axes are found in a funeral context in the North Pontic Area, unlike south of the Carpathians where most artefacts of this type are deposits ('hoards') and stray finds [Bátora 2003: 2, Fig. 1; Hansen 2009: 149-155; Szeverényi 2013: 666, 667]. The finds of metal shaft-hole axes in the CWC circle – as shown by the case of Szczytna – are related to the funeral context, too. A corroboration comes from the find of this type of artefact in grave 1, barrow 10, in a Middle Dnieper culture cemetery, Khodosovichi, 'Moshka' [Artemenko 1967: 30].

The Szczytna assemblage of metal goods indicates, thus, a connection with eastern Europe, perhaps with the North Pontic Area. Although at that time (around the middle of the 3rd millennium BC) similar types of goods were already present south of the Carpathians, the best counterparts and closer analogous contexts of discoveries are found in the circle of 'steppe' cultures, especially in the Middle Dnieper culture. This connection is not accompanied by other clearly extraneous traits. On the contrary, grave design, body arrangement, and pottery and flint grave goods are typical of the Sub-Carpathian CWC. The Szczytna find considerably expands the scope of connections with eastern Europe described in the preceding section and those concerning the assortment of metal goods in Małopolska graves.

#### 4. QUESTION OF CHRONOLOGY

In the last twenty years, owing to obtained radiocarbon dates, important findings have been made, concerning the chronology of Małopolska Late and Final Neolithic cemeteries. The time frame of assemblages associated with the CWC circle has been set with utmost probability at ca. 2800/2700-2400/2300 BC [Włodarczak 2013a: 381]. To the period of 2600-2400 BC, Kraków-Sandomierz group assemblages were dated, which corresponds to the time when the classic Małopolska catacomb design was used in the CWC funerary ritual. In an earlier period (ca. 2800/2700-2600 BC), a dominant ritual provided for the construction and secondary use of barrows [Jarosz, Włodarczak 2007] and Złota-type niche graves. ZC cemeteries are dated to ca. 2900/2800-2600 BC [Włodarczak 2008a; 2013; Wilk 2013]. Hence, their age corresponds to both the oldest CWC barrows (and in general to the older phase of this culture) and the younger phase of the Małopolska GAC [Włodarczak, Przybyła 2013: 235-240].

A still difficult problem is posed by the possibility of dating the youngest CWC barrows to the 2nd half of the 3rd millennium BC. This age bracket is indicated by single radiocarbon determinations, for instance, for barrows in Krajowice, Łukawica [Machnik, Ścibior 1991: 50, Fig. 2] or Bykiv, Ukraine [Machnik *et al.* 2006a: 222, Fig. 21]. This possibility must be verified by obtaining new data, corroborating the results that have been produced so far.

The suggested dating of CWC assemblages relies above all on determinations supplied, using the AMS, by the Poznań Radiocarbon Laboratory in recent years. The acceptance of all determinations obtained earlier [Machnik, Ścibior 1991; Włodarczak 2001] produced the conceptions of an early dating of the oldest CWC stage (to the late 4th and early 3rd millennia BC) and the suggestions that some graves bearing the classic Małopolska CWC niche design were of an early date [Furholt 2003]. The acceptance of all determinations in order to mark divisions in the development of the cultural phenomena under discussion is, on the one hand, controversial and, on the other, does not yield easily to objective criticism. At present, the only way to solve the problem is to attempt to verify controversial radiocarbon age determinations [Goslar, Kośko 2011; Włodarczak 2009]. The same problems plague the determinations of absolute age, concerning materials from the North Pontic Area [Rassamakin, Nikolova 2008: 60-67].

The dating proposal mentioned above would mean that Małopolska ZC assemblages and those belonging to the older phase of the CWC are contemporary with the early and classic stages of YC varieties distinguished earlier (north-western and south-western) – in agreement with the latest proposals of Ukrainian researchers [Rassamakin, Nikolova 2008; Buniatian, Nikolova 2010; Ivanova 2013]. In this period, most of the barrow cemeteries were built in south-eastern Poland. Whereas, the younger CWC phase (after ca. 2600/2500 BC) corresponds to the late YC phase ('Budzhak' phase in the case of the south-western variety of this culture) and the assemblages of the early CC phase [Kaiser 2009: 65]. The oldest stage of this last-mentioned culture, however, continues to pose difficulties in its timing in the western portion of its range, in particular west of the Inhul cluster, i.e. in the neighbourhood of the CWC settlement.

Attempts to synchronize central European and North Pontic chronologies encounter difficulties around 2600-2400 BC, i.e. when younger CWC groups were developing, including the Kraków-Sandomierz group. The moment of a major change in the funerary rituals and a number of innovations in material culture were synchronized above with analogous changes in North Pontic Area communities and with the origins of the CC complex. However, the proposals of this culture's chronology have tentatively dated it to ca. 2400-2000 BC – at least with respect to most regional groups on the right bank of the Dnieper [Kaiser 2009: 66]. Although there are older age determinations for the Inhul CC, corresponding to the age of CWC catacomb graves [Telegin *et al.* 2003, Tab. 2], the data available now do not support building a credible sequence. Here, the main obstacle is the unavailability



of absolute age determinations mentioned earlier for graves associated with the older phases of the Inhul CC. Hence, it cannot be ruled out that the inception of this group falls on the years close to or even slightly earlier than the younger CWC phase in Małopolska (ca. 2600-2500 BC).

## 5. MAŁOPOLSKA – VOLHYNIA – DNEIPER AREA RELATION

The discovery of a grave in Młodów-Zakęcie [Fig. 19, Machnik, Pilch 1997] and the investigations of barrows on the Sokal Ridge have induced Jan Machnik to suggest thesis providing for the migrations of small Middle Dnieper culture population groups. Supposedly, this was the reason for the ‘syncretisation’ of material culture in south-eastern Poland [Machnik 1999; Machnik *et al.* 2001; 2009]. Pottery showing traits of this culture has been documented recently also in assemblages from Sub-Carpathia [Machnik 2011: 63]. The first results of radiocarbon dating obtained for graves with ‘Middle Dnieper’ pottery underlay an interpretation, assuming a relatively short phase of infiltration by eastern European populations [2540-2490 BC; Kadrow 2003: 243]. The accumulating pool of references recorded throughout Małopolska and ever more numerous discoveries in Volhynia [Bunyatyan, Samolyuk 2009] may, however, indicate a slightly longer period of contacts and underscore the significance of cultural ties between south-eastern Poland and the Middle Dnieper Area, including western Ukraine lying in between. Both pottery and other artefacts that may be related to the Middle Dnieper culture environment (metal and stone goods as well as ornaments described above) were deposited in graves arranged according to the rites of the Małopolska CWC. Besides the case of grave 1 in Pałecznica, described above, no burials have been recorded that would obviously breach local rituals. Hence, it can be concluded that CWC groups in south-eastern Poland entered a phase of the same stylistic inspirations that guided communities settling Volhynia and the Middle Dnieper Area. A factor conducive to this unification was certainly the import of major raw materials from the last-mentioned areas (metals, rocks for making battle-axes, flints).

Relying solely on the presence of Middle Dnieper beakers in Małopolska graves, it is not feasible to assess the scale of population movements from Ukraine to Małopolska. For such vessels have never been found in the context of a funerary ritual different from the model followed by the local communities of the Final Neolithic CWC. Even the Młodów-Zakęcie inventory cited above in terms of quality is characteristic of the Małopolska CWC and could have come from a destroyed grave showing local traits.

Although the Małopolska-Volhynia-Dnieper area relation is a significant cultural connection around the middle of the 3rd millennium BC, it does not help to explain the rise of the niche grave design, an important element of funerary rites, in Małopolska. Both graves representing the older stage of the use of this design (ZC, barrow graves) and features from a younger stage (ca. 2600-2400 BC), assuming their North Pontic origin, can bear out the relation only as far as the area lying to the south of the lands settled by Middle Dnieper culture populations (in which no catacomb graves have been found so far). First of all, one should consider a relation to northern Moldavia (on the upper Prut River), Budzhak and the lands on the lower Boh, Inhul and lower Dnieper rivers.

## 6. CONCLUSION

The question of a possible relation to North-Pontic Early-Bronze cultures has a direct bearing on the origins of the CWC in central Europe. The findings in this respect, related to Final Neolithic cemeteries in Małopolska, can be summed up as follows:

A. In the funerary rites of communities settling south-eastern Poland in the early centuries of the 3rd millennium BC, deep ideological changes can be observed, taking place in stages as can be seen from the ZC ritual, one of an intermediate character, combining rites known from the Late Neolithic GAC with elements typical of the Final Neolithic CWC ritual. An attempt to explain these changes refers to the role of communication between communities settling Małopolska and the North Pontic Area. A stimulus intensifying this connection came from the arrival of central European GAC communities in the forest-steppe zone in the late 4th and early 3rd millennia BC and their contact with local Eneolithic and Early Bronze systems [Szmyt 1999; 2000]. According to a thesis suggested elsewhere, this was the beginning of the disintegration of the GAC ideological system, resulting in the rise of new funerary rituals of the ZC and CWC [Włodarczak 2008a]. Similar rules of the new ritual soon crystallised across the vast expanses of Europe. Against this background, however, CWC grave finds in Małopolska can be viewed as having a special quality imparted to them by the relation with the North Pontic Area. This relation does not bear out a genetic difference between the group of finds under discussion and other local CWC groups in central Europe. On the contrary, all elements having eastern European origin suggested here were incorporated without obstacles into the sphere of cultural behaviour, becoming an alternative for (niche graves, new types of stone battle-axes) or an enrichment (archer's equipment, metal earrings) of central European funerary rites.

B. The proposal to consider Małopolska finds as a special enclave joined by intensive relations to the North Pontic Area is not the best solution. Małopolska is the western frontier of a vast zone, comprising CWC groups from Podolia, Volhynia and the Middle Dnieper Area. A special trait of communities settling this zone was the maintaining of permanent relations with other population groups, occupying the neighbouring expanses of forest-steppe and steppe. It should be expected that the crucial contact area was the eastern frontier of the CWC complex (i.e. the area occupied by the Middle Dnieper culture) where the ranges of this culture's and YC's finds noticeably overlap. The latitudinal ties between CWC groups (in Volhynia and Podolia) were probably the chief reason behind the adaptation of various funerary rites of steppe communities, especially at the younger stages of the Final Neolithic.

C. Grave goods indicate that Małopolska CWC communities shared a desire to possess objects of specific and frequently prestige stylistic-technological connotations (*see* metallurgy) and raw-material ones (*see* flint working and stone battle-axes). This desire sustained long-distance ties to procure such goods. One of such major ties joined Małopolska to eastern European communities, including the North Pontic Area. Its importance for the ideological sphere may also suggest that North Pontic models were followed not only in funerary rites but also in other spheres. This could be true for the economy, providing a stimulus for destabilizing the settlement network to a greater extent than in western CWC groups and pushing it towards a clear domination of herding in agriculture [Machnik 1966; Kruk 1973].

D. The study of funeral rites and the traits of artefacts from Małopolska CWC graves suggests that there were two communication lines with the North Pontic Area: (a) Podolian and (b) Volhynian (Fig. 2). The first is more important at the older stage of the Final Neolithic (ca. 2900-2600 BC), whereas the second gains in significance at a later period (ca. 2600-2400 BC). Both functioned until the beginnings of the Bronze Age. The first can be considered an important factor in creating a new system of funeral behaviour in the upper Vistula drainage basin (GAC-ZC-older CWC phase). The second had a decisive impact on the considerable standardization of the rites and caused greater similarity of material culture products between the drainage basins of the Vistula and Dnieper (younger CWC phase).

E. In Małopolska, no graves associated with YC-CC populations have been unearthed so far. Not a single feature has been discovered that would be in line with the North Pontic models in terms of the entire set of traits (grave design, including the use of wooden covers, body arrangement, presence of mats, use of ochre, appropriate grave goods). Only single artefacts may come from the area occupied by the communities of the above-named cultures. Thus, the Małopolska – North Pontic Area relation is considered primarily in the context of the network of long-distance communication between CWC groups, resulting in the adaptation of models from the world of 'steppe' communities. The need for such a communication, stemming

no doubt from the social organization of central European Final Neolithic groups, was the principal reason behind cultural changes, leading towards the Early Bronze Age. The absence of any evidence of the physical presence of YC-CC representatives in Małopolska does not detract from the role the ties between this region and the North Pontic Area could have played.

*Translated by Piotr T. Żebrowski*



## REFERENCES

Adamik J.

- 2012 *Idea skrzyni kamiennej jako formy grobu na terenie ziem polskich w późnej epoce brązu i wczesnej epoce żelaza. Collectio Archaeologica Ressorvian-sis XVIII*. Rzeszów.

Alekseeva I.L.

- 1992 *Kurgany epokhi paleometalla v severo-zapadnom Prichernomorie*. Kiev.

Androsova A.V., Marina Z.P., Zavgorodniy D.I.

- 1991 Eneoliticheskiy kurgan u sela Boguslav v Prisamare. In: I.F. Kovaleva (Ed.) *Problemy arkheologii Podneprovya*, 4-19. Dnepropetrovsk.

Androsova A.V., Melnik A.A.

- 1991 Kurgany rannego bronzovogo veka Krivorozhia s zoomorfnymi konstrukt-siyami. In: *Problemy arkheologii Podneprovya*, 35-50. Dnepropetrovsk.

Anthony D.

- 2007 *The Horse, The Wheel, and Language. How bronze-age riders from the Eurasian steppes shaped the modern world*. Princeton and Oxford.

Antoniewicz W.

- 1925 Eneolityczne groby szkieletowe we wsi Złota w pow. Sandomierskim, *Wiadomości Archeologiczne* 9: 191-242.

Apel J.

- 2001 *Daggers. Knowledge & Power. The Social Aspects of Flint Dagger Technology in Scandinavia 2350-1500 cal BC*. Uppsala.
- 2008 Knowledge, Know-how and Raw Material. *The Production of Late Neolithic Flint Daggers in Scandinavia, Journal of Archaeological Method and Theory* 15: 91-111.

Artemenko I.I.

- 1967 Plemena Verkhnego i Srednego Podneprovya v epokhu bronzы. In: *Materialy i issledovaniya po arkheologii SSSR* 148. Moskva.

Äyräpää A.

- 1933 Über die Streiaxtkulturen in Russland. *Eurasia Septentrionalis Antiqua* 8.

Bagińska J.

- 2006 Cmentarzysko kultury pucharów lejkowatych na stanowisku 25 w Łubczu, pow. Tomaszów Lubelski. In: J. Libera, K. Tunia (Eds), *Idea megalitycz-*

na w obrządku pogrzebowym kultury pucharów lejkowatych, 421-430. Lublin-Kraków.

Bagińska J., Machnik J.

- 2001 Wyniki ratowniczych badań zniszczonego kurhanu na stan. 31 w Werszczy, pow. Tomaszów Lubelski na Grzędzie Sokalskiej: wyodrębnienie grupy sokalskiej kultury ceramiki sznurowej, *Archeologia Polski Środkowo-wschodniej* 6: 38-57.

Bajka M.

- 2010 Kolejny grób kultury złockiej z Sandomierza, *Zeszyty Sandomierskie* 30: 2-8.
- 2012 *Sprawozdanie z ratowniczych badań wykopaliskowych przeprowadzonych w lipcu 2012 r. w Święcicy, pow. sandomierski, stan. 30, w miejscu przypadkowego odkrycia grobu z okresu późnego neolitu. Archiwum WUOZ Delegatura w Sandomierzu*. Sandomierz

Balcer B.

- 1983 *Wytwórczość narzędzi krzemiennych w neolicie ziem polskich*. Wrocław–Warszawa–Kraków–Gdańsk–Łódź.

Balcer B., Machnik J., Sitek J.

- 2002 *Z pradziejów Roztocza na ziemi zamojskiej*. Kraków.

Banasiewicz E.

- 1990 *Badania na cmentarzysku kultury strzyżowskiej w Hrubieszowie-Podgórzu, woj. Zamość w latach 1983-1986*, *Sprawozdania Archeologiczne* 42: 213-226.

Banasiewicz-Szykuła E., Gołub I., Grochecki K., Koman W., Mączka G., Wetoszka B.

- 2010 *Sprawozdanie z działalności w zakresie ochrony zabytków archeologicznych w województwie lubelskim w 2009 roku*, *Wiadomości Konserwatorskie Województwa Lubelskiego* 12: 7-76.

Banasiewicz-Szykuła E., Gołub I., Koman W., Mączka G., Zieniuk P.

- 2012 *Sprawozdanie z działalności w zakresie ochrony zabytków archeologicznych na terenie województwa lubelskiego w 2011 roku*, *Wiadomości Konserwatorskie Województwa Lubelskiego* 14: 7-86.
- 2013 *Sprawozdanie z działalności w zakresie ochrony zabytków archeologicznych na terenie województwa lubelskiego w 2012 roku*, *Wiadomości Konserwatorskie Województwa Lubelskiego* 15: 7-76.

Banasiewicz-Szykuła E., Gołub I., Mączka G., Koman W., Zieniuk P.

- 2011 Sprawozdanie z działalności w zakresie ochrony zabytków archeologicznych w województwie lubelskim w 2010 roku, *Wiadomości Konserwatorskie Województwa Lubelskiego* 13: 7-70.

Bandrivskiy M.

- 2007a Vplyv skhodu na rozvytok rannioho – Puchatku serednioho periodiv epokhy brony na zakhodi ukrayinskoho lisostepu. *Zapysky Naukovoho tovarystva im. Shevchenka* CCLIII: 154-205.
- 2007b Pokhovannia piznioeneolitychnoho chasu v seli Luka na Ternopilschyni ta problema vidnosnoyi i absolutnoyi khronolohiyi mehalitychnykh hrobnys Podillia (Z rozkopom Ihora Gerety 1996 roku. *Zapysky Naukovoho tovarystva im. Shevchenka* CCLIII: 226-243.

Bargieł B.

- 2006a Kultura strzyżowska w świetle znalezisk grobowych, *Wiadomości Archeologiczne* 58: 65-99.
- 2006b Materiały z wielokulturowych stanowisk w Horodysku, pow. chełmski, *Archeologia Polski Środkowowschodniej* 8: 351-361.
- 2009 Z problematyki występowania grocików krzemiennych na przykładzie znaleziska z Mydlowa, pow. opatowski, woj. świętokrzyskie. In: H. Taras, A. Zakościelna (Eds), *Hereditas praeteriti. Additamenta archaeologica et historica dedicate Ioanni Gurba Octogesimo Anno Nascendi*, 195-208. Lublin.

Bargieł B., Florek M.

- 1990 Grób kultury złockiej w Starym Garbowie na stan. 3, woj. Tarnobrzeg, *Sprawozdania Archeologiczne* 41: 77-83.

Bargieł B., Libera J.

- 1997a Z badań nad formami bifacjalnymi w Małopolsce. In: J. Lech, D. Piotrowska (Eds), *Z badań nad krzemieniarstwem epoki brązu i wczesnej epoki żelaza. Materiały sympozjum zorganizowanego w Warszawie 20-22 października 1994 r.*, 145-161. Warszawa (= Polska Akademia Nauk. Komitet Nauk Pra- i Protohistorycznych, Prace 2).
- 1997b Zabytki kamienne „typu północnego” odkryte w międzyrzeczu Wisły i Bugu, *Archeologia Polski Środkowowschodniej* 2: 263-268.
- 2004 „Groty typu strzyżowskiego” – mit a rzeczywistość. In: J. Libera, A. Zakościelna (Eds), *Przez pradzieje i wczesne średniowiecze. Księga jubileuszowa na siedemdziesiąte piąte urodziny docenta doktora Jana Gurby*, 169-187. Lublin.
- 2005a Kultura strzyżowska na Lubelszczyźnie w świetle znalezisk grobowych. In: V.V. Otroschenko *et al.* (Eds), *Na poshanu Sofiyi Stanislavivny Berezhanskoyi*: 197-211. Kyiv.

- 2005b Zespoły grobowe z krzemiennymi płoszczami w Małopolsce i na Wołyniu, *Wiadomości Archeologiczne* 57 (2004-2005): 3-27.
- 2006 Krzemienne „groty” znalezione w środkowej Polsce – ich chronologia i przynależność kulturowa. In: A. Stępień-Kuczyńska, M. Olędzki (Eds), *Cultura et politica. Studia i rozprawy dedykowane Profesorowi Jerzemu Kmiecowskiemu*, 31-50. Łódź.
- Bátora J.
- 2003 Kupferne Schaftlochhäxte in Mittel-, Ost- und Südosteuropa. *Slovenská Archeológia* 51(1): 1-38.
- 2006 *Štúdie ku komunikácii medzi strednou a východnou Európou v dobe bronzovej*. Bratislava.
- Bąbel J. T.
- 2013 *Cmentarzyska społeczności kultury mierzanowickiej na Wyżynie Sandomierskiej*. Część 1. Obrządek pogrzebowy. Część 2. Źródła. Rzeszów.
- Beier H.J.
- 1983 *Die Grab-und Bestattungssitten der Walternienburger und Bernburger Kultur*. Halle.
- 1991 *Die megalithischen, submegalithischen und pseudomegalithischen Bauten sowie die Menhire zwischen Ostsee und Thüringer Wald. Beiträge zur Ur- und Frühgeschichte Mitteleuropas 1*, Wilkau-Haßlau.
- Berezanska S.S., Okhrimenko G.V., Piasetskiy V.K.
- 1987 Novi pamiatky skhidnotshynetskoyi kultury na Volyni. *Arkheolohiya* 60: 50-58.
- Bogatyriew P.
- 1979 *Semiotyka kultury ludowej*. Warszawa.
- Bratchenko S.N.
- 2001 *Donetska katakombna kultura rannioho etapu*. Luhansk.
- 2007 Katakombne “baroko” s ovami ta petliamy v sistemi ornamentatsiyi. In: *Materialy ta doslidzhennia z arkheolohiyi Skhidnoyi Ukrainy* 7, 103-109. Luhansk.
- 2012 *Leventsovskaya krepost. Pamiatnik kultury bronzovogo veka*. Kiev.
- Bronicki A.
- 1991 Późnoneolityczne i wczesnobrązowe toporki kamienne z obszaru województwa chełmskiego. In: J. Gurba (Ed.) *Schyłek neolitu i wczesna epoka brązu w Polsce środkowowschodniej*, 297-340. Lublin.



Bronicki A., Kadrow S.

- 1998 Schyłkowe neolityczne topory kamienne z terenu województwa chełmskiego. *Metrologia. Zagadnienie utylizacji egzemplarzy uszkodzonych i destruktywów, Archeologia Polski Środkowowschodniej* 3: 260-275.

Bronicki A., Kadrow S., Zakościelna A.

- 2003 Radiocarbon Dating of the Neolithic Settlement in Zimne, Volhynia, in Light of the Chronology of the Lublin-Volhynia Culture and the South-Eastern Group of the Funnel Beaker Culture. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 4000-1000 BC. Baltic-Pontic Studies* 12: 22-66.

Budziszewski J., Tunia K.

- 2000 A Grave of the Corded Ware culture Arrowheads Producer in Koniusza, Southern Poland. Revisited. In: S. Kadrow (Ed.) *A Turning of Ages. Im Wandel der Zeiten. Jubilee Book Dedicated to Professor Jan Machnik on His 70th Anniversary*, 101-135. Kraków.

Budziszewski J., Włodarczak P.

- 2010 *Kultura pucharów dzwonowatych na Wyżynie Małopolskiej (z udziałem Elżbiety Haduch i Antonina Přichystala)*. Kraków.

Buko A.

- 1988 Sandomierski „Kopiec” Salve Regina w świetle wyników ostatnich badań, *Archeologia Polski* 28: 137-165.

Buniatian K.P.

- 2005 Khronolohiya ta periodyzatsiya pokhovan seredniodniprovskeyi kultury pravobezhnoyi Ukrainy, *Arkheolohiya* 4: 26-36.

Buniatian K.P., Nikolova A.V.

- 2010 Kurhany yamnoyi kultury na trypilskykh poselenniakh Dobrovody i Talianky. In: *Kolektsiyi Naukovykh fondiv Instytutu arkheolohiyi NAN Ukrainy. Materialy ta doslidzhennia, Arkheolohiya i davnia istoriya Ukrainy*, 34-50. Kyiv.

Bunyatyan K.P., Samolyuk V.

- 2009 Manifestations of Middle Dniepr Culture in the Volyn territory and the issue of ancient routes. In: A. Koško, V.I. Klochko (Eds), *Routes between the seas: Baltic-Bug-Boh-Pont from the 3rd to the Middle of the 1st millennium BC, Baltic-Pontic Studies* 14: 252-268.

Burchard B., Włodarczak P.

- 2012 Złota culture graves at site 1 in Samborzec, Sandomierz District, *Sprawozdania Archeologiczne* 64: 269-296.

Burov G.M.

- 2007 Kemi-obinskaja kultura – realnost' Ili fantazja? In: *Materiali ta doslidzhen-nya z archeologii Skhidnoi Ukraini* 7: 73-75. Lugansk.

Burtănescu F.

- 2002a *Epoca timpurie a bronzului între Carpați și Prut*. București.  
2002b Globular Amphora culture in Moldavia between the Carpathians and Prut. Current state of evidence, *Thraco-Dacica* 23(1-2): 119-152.

Bydłowski A.

- 1905 Mogiły w Jackowicy, w powiecie lipowieckim, w gub. kijowskiej, *Światowit* 6: 8-30.

Chachlikowski P.

- 1996 Ze studiów nad pochodzeniem i użytkowaniem surowców importowanych w wytwórczości kamieniarskiej społeczności wczesnorolniczych Kujaw. In: J. Bednarczyk, A. Koško (Eds), *Z badań nad genezą regionalizmu kulturowego społeczeństw Kujaw*, 121-153. Poznań-Kruszwica-Inowrocław.

Chebotarenko G.F., Yarovoy E.V., Telnov N.P.

- 1989 *Kurgany Budzhakskoy Stepі*. Kishiniev.

Cherniakov I.T.

- 2004 Akkembetskiy kurhan. In: S.M. Liashko, N.B. Burdo, M. Yu. Videyko (Eds), *Entsyklopediya trypil'skoyi tsyvilizatsii* 2, 11-13. Kyiv.

Chernysh E.K.

- 1951 Tripolskie orudiya truda s poselenia u. s. Vladimirovki. *Kratkie soobsche-niya Instituta Istorii Materialnoy Kultury* 40: 85-95.  
1982 Eneolit Pravoberezhnoy Ukrainy i Moldavii. In: V.M. Masson, N. Ya. Mer-per (Eds), *Eneolit SSSR, Arkheologiya SSSR* 4, 165-320. Moskva.

Chernykh E.N. = Chernykh Y.N.

- 1976 *Drevniaya metalloobrabotka na Yugo-Zapade SSSR*. Moskva.  
1977 Ob evropeyskoy zone Tsirkumpontiyskoy metallurgicheskoy provintsii (CMP), *Acta Archaeologica Carpathica* 17: 29-54.  
1978a *Gornoe delo i metallurgiya v drevneyshey Bolgarii*. Sofia.  
1978b Metallurgicheskiye provintsii i periodizatsiya epokhi rannego metalla na territorii SSSR, *Sovetskaya Arkheologia* 4: 53-82.  
1992 *Ancient Metallurgy in the USSR. The Early Metal Age*. Cambridge.

Chernykh E.N., Avilova L.I., Orlovskaya L.B.

- 2000 *Metallurgicheskie provintsii i radiouglerodnaya khronologia*. Moskva.

Childe V.G.

- 1925 *The Dawn of European Civilization*. London.

Chochorowski J.

- 1976 Pochówek szkieletowy kultury ceramiki sznurowej z Kietrza, woj. Opole, *Sprawozdania Archeologiczne* 28: 125-131.
- 1999 Łowcy i pasterze w dobie brązowego oręża – epoka brązu na obszarach Euroazji. In: J.K. Kozłowski (Ed.) *Prehistoria, Encyklopedia Historii Świata*, vol. I 253-303. Kraków.

Cucoş S.

- 1985 Cultura amforelor sferice din depresiunea subcarpatica a Moldovei, *Memo-ria Antiquitatis* 9-11 (1985): 141-161.

Czebreszuk J.

- 2001 *Schyłek neolitu i początki epoki brązu w strefie południowo-zachodnio-bałtyckiej (III i początki II tys. przed Chr.). Alternatywny model kultury.* Uniwersytet im. Adama Mickiewicza w Poznaniu. Seria Archeologia 46). Poznań.

Czebreszuk J., Kozłowska-Skoczka D.

- 2008 *Sztylety krzemienne na Pomorzu Zachodnim.* Szczecin.

Czopek S. (Ed.)

- 2011 *Autostradą w przeszłość.* Rzeszów.

Dąbrowski J.

- 2006 Groby kultury łużyckiej z Siedliszcza, pow. chełmski. *Archeologia Polski Środkowowschodniej* 8: 275-291.

Dergachev V.A.

- 1975 *Bronzovye predmety XIII-VIII vv. do n.e. iz Dnestrovsko-Prut'skogo mezh-durechia.* Kishinev.
- 1982 *Materialy raskopok arkheologicheskoy ekspeditsii na Srednem Prute (1975-1976 gg.),* Kishinev.
- 1986 *Moldavia i sosedniye territorii v epokhu bronzы.* Kishinev.
- 2002 *Die äneolitischen und bronzezeitlichen Metallfunde aus Moldavien. Prähis-torische Bronzefunde XX/ 9.* Stuttgart.

Dergachev V.A., Manzura I.V.

- 1991 *Pogrebalnye komplekсы позднего Tripolia.* Kishinev.

Domańska L.

- 1995 *Geneza krzemieniarstwa kultury pucharów lejkowatych.* Łódź.
- 2013 *Krzemieniarstwo horyzontu klasycyznowióreckiego kultury pucharów lej-kowatych na Kujawach.* Łódź.

Ecsedy I.

- 1979 *The People of the Pit-Grave Kurgans in Eastern Hungary.* Budapest.

Engovatova A. V.

- 1994 *Kremnevaya industriya tripolskoy kultury (po materialam pamiatnikov dnestro-dneprovskogo mezhdurechia)*. (Avtoreferat dissertatsii na soiskanie uchonyy stepeni kandidata istoricheskikh nauk). Moskva.

Florek M.

- 2012 Badania archeologiczne w Złotej koło Sandomierza w latach 2002-2004 i 2012, *Zeszyty Sandomierskie* 33: 66-69.

Florek M., Libera J.

- 1994 Pierwszy sezon badawczy przykopalnianych pracowni w rejonie wychodni krzemienia świeciechowskiego w Kopcu. In: J. Gurba (Ed.) *Sprawozdania z badań terenowych Katedry Archeologii UMCS w 1993 roku*, 3-14. Lublin.

Florek M., Zakościelna A.

- 2005 Cmentarzysko ze schyłku neolitu i początku epoki brązu w Wilczycach, pow. Sandomierz, *Archeologia Polski Środkowowschodniej* 7: 42-54.

Forssander E.J.

- 1933 *Die schwedische Bootaxtkultur und ihre kontinentaleuropäische Voraussetzungen*. Lund.

Furholt M.

- 2003 Die absolutchronologische Datierung der Schnurkeramik in Mitteleuropa und Südsandinavien. *Universitätsforschungen zur Prähistorischen Archäologie* 101. Bonn.

Gajewski L.

- 1972 Zabytki ze zniszczonego grobu kurhanowego (?) z miejscowości Ostrówek, pow. Lubartów, *Wiadomości Archeologiczne* 37(2): 226-227.

Gancarski J., Valde-Nowak P.

- 2011 Inwentarze „grobowe” kultury ceramiki sznurowej w nasypach kurhanów w Karpatach. In: H. Kowalewska-Marszałek, P. Włodarczak (Eds), *Kurhany i obrządek pogrzebowy w IV-II tysiącleciu p.n.e.*, 279-289. Kraków, Warszawa.

Gardawski A.

- 1951 Niektóre zagadnienia kultury trzcinieckiej w świetle wykopalisk w miejscowości Łubna, pow. Sieradz, *Wiadomości Archeologiczne* 18(1-2): 1-84.  
1959 Plemiona kultury trzcinieckiej w Polsce, *Materiały Starożytne* 5: 7-189.

Gardawski A., Rajewski Z.

- 1956 Znaleźiska archeologiczne w Hrubieszowie i okolicy, *Wiadomości Archeologiczne* 23(1): 104-111.



Gavrilov A.V.

- 1991 Kurgan epokhi bronzы u sela Donskoe v Krymu. In: *Problemy Arkheologii Severnogo Prichernomoria*, 52-60. Cherson.

Gavrilov A.V., Toshev G.N.

- 2012 Novye pamiatniki epokhi bronzы v Krymu. *Starozhytnosti stepovogo Prichernomoria i Krymu* 16: 63-94.

Gazda L.

- 2009 Analiza zabytków kamiennych z grobów podkurhanowych na Grzędzie Sokalskiej. In: J. Machnik, J. Bagińska, W. Koman (Eds), *Neolityczne kurhany na Grzędzie Sokalskiej w świetle badań archeologicznych w latach 1988-2006*, 303-308. Kraków.

Gąsowska E.

- 1962 Nowe odkrycia grobów kultury ceramiki sznurowej w pow. Sandomierz, *Wiadomości Archeologiczne* 28: 88-90.

Gedl M.

- 1980 *Die Dolche und Stabdolche in Polen. Prähistorische Bronzefunde VII* 7. München.
- 2000 Miedziane topory ze schyłku III tysiąclecia przed Chrystusem z terenu Polski. *Rocznik Przemyski* 36(1): 3-10.
- 2004 Die Beile in Polen IV (Metelläxte, Eisenbeile, Hämmer, Ambosse, Meissel, Pfrieme). *Prähistorische Bronzefunde IX/24*. Stuttgart.

Gey A.N.

- 2011 Spornye voprosy i perspektivy izucheniya katakombnoy kulturno-istoricheskoy obschnosti. *Kratkie soobscheniya Instituta arkheologii* 225: 3-15.

Gimbutas M.

- 1956 *The Prehistory of Eastern Europe. Part 1*. Cambridge.
- 1977 The first wave of Eurasian steppe pastoralists into Copper Age Europe, *Journal of Indo-European Studies* 5: 277-338.
- 1980 The Kurgan Wave #2 (c.3400-3200 BC) into Europe and Following Transformation of Culture, *Journal European Studies* 8: 273-315.
- 1997a The Three Waves of the Kurgan People into Old Europe, 4500-2500 BC. In: M. Robbins Dexter, K. Jones-Bley (Eds), *The Kurgan Culture and the Indo-Europeanization of Europe*, 240-266. Washington D.C.
- 1997b The Kurgan Wave #2 c. 3400-3200 B.C. into Europe and the Following Transformation of Culture. In: M. Robbins Dexter, K. Jones-Bley (Eds), *The Kurgan Culture and the Indo-Europeanization of Europe*, 269-300. Washington D.C.

Ginter B., Kozłowski J. K.

- 1990 *Technika obróbki i typologia wyrobów kamiennych paleolitu, mezolitu i neolitu*. Warszawa.

Ginter B., Rogozińska-Goszczyńska R.

- 1965 Przyczynek do poznania wschodnich grup kultury ceramiki sznurowej (na podstawie stanowiska w Majdanie Mokwińskim, pow. Kostopol, USRR). *Materiały Archeologiczne* 6: 33-66.

Głosik J.

- 1958 Groby kultury ceramiki sznurowej w miejscowości Gródek Nadbużny, pow. Hrubieszów. *Wiadomości Archeologiczne* 25(1-2): 160-164.
- 1962 Wołyńsko-podolskie materiały z epoki kamienia i wczesnej epoki brązu w Państwowym Muzeum Archeologicznym w Warszawie. *Materiały Starożytne* 8: 125-216.
- 1968 Kultura strzyżowska. *Materiały Starożytne* 11: 7-114.
- 1993 Katalog Pogotowia Archeologicznego za lata 1977-1981. *Wiadomości Archeologiczne* 52 (1991-1992): 209-234

Gołub S.

- 1996 Zagroda, gm. Chełm, stanowisko 26 – II sezon badań wykopaliskowych cmentarzyska kultury pomorskiej (z pozostałościami osadnictwa kultury łużyckiej i z okresu średniowiecza). *Archeologia Polski Środkowowschodniej* 1: 73-74.

Gorodtsov V.A.

- 1905 Rezultaty arkheologicheskikh issledovaniy v Iziymskom uezde Kharkovsk-hoy gubernii 1901 goda. In: *Trudy XII arkheologicheskogo syezda*, vol. 1, 174-225. Moskva.
- 1907 Rezultaty arkheologicheskikh issledovaniy v Bakhmutskom uezde Ekaterinoslavskoy gubernii v 1903 g. *Trudy XIII arkheologicheskogo syezda*, vol.1. Moskva.

Goslar T., Koško A.

- 2011 Z badań nad chronologią i typogenezą kujawskich kurhanów starsznurowych. Krusza Zamkowa, powiat Inowrocław, stanowisko 3. In: H. Kowalewska-Marszałek, P. Włodarczak (Eds), *Kurhany i obrządek pogrzebowy w IV – II tysiącleciu p.n.e.*, 407-416. Kraków-Warszawa.

Goslar T., Koško A., Razumow S.

- 2014 Identyfikacja kulturowo-chronologiczna cmentarzysk „wczesnobrązowych” na stanowisku Pidlisivka 1. In: A. Koško, M. Potupczyk, S. Razumow (Eds), *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w oko-*

*licach Jampola, obwód winnicki. Z badań nad północno-zachodnią rubieżą osadnictwa społeczności kręgu kultur „wczesnobrązowych” strefy pontyjskiej. Badania z lat 1984 -2014. Archaeologia Bimaris. Monografie 6, 305-312. Poznań.*

Górski J., Jarosz P.

- 2006 Cemetery of the Corded Ware and the Trzciniec Cultures in Gabułów/Cmentarzysko kultury ceramiki sznurowej i trzcinieckiej w Gabuławie. *Sprawozdania Archeologiczne* 58: 401-451.

Gurba J.

- 1960 Grób kultury czasz lejowatych ze Starej Wsi w powiecie lubartowskim. *Przegląd Archeologiczny* 12 (1959): 14-16.
- 1969 Materiały kultury czasz (pucharów) lejowatych z okolic Nałęczowa w pow. Puławskim. *Studia i Materiały Lubelskie* 4: 67-99.

Hansen S.

- 2009 Kupferzeitliche Äxte zwischen dem 5. und 3. Jahrtausend in Südosteuropa. *Analele Banatului* 17:139-158.

Hansen S.

- 2010 Communication and exchange between the Northern Caucasus and Central Europe in the fourth millennium BC. In: S. Hansen, A. Hauptmann, I. Motzenbäcker, E. Pernicka (Eds), *Von Majkop bis Trialeti. Gewinnung und Verbreitung von Metallen und Obsidian in Kaukasien im 4.-2. Jt. V. Chr. Beiträge des Internationalen Symposiums in Berlin vom 1.-3. Juni 2006. Kolloquien zur Vor- und Frühgeschichte* 13, 297-316. Bonn.

Häusler A.

- 1964 Innenverzierte Steinkammergräber der Krim. *Jahresschrift für mitteldeutsche Vorgeschichte* 48: 59-82.
- 1966 Die Gräber der Kugelamphorenkultur in Wolhynien und Podolien und die Frage ihres Ursprungs. *Jahresschrift für mitteldeutsche Vorgeschichte* 50: 115-140.
- 1976 *Die Gräber der älteren Ockergrabkultur zwischen Dnepr und Karpaten.* Berlin.
- 1981 Zu den Beziehungen zwischen dem nordpontischen Gebiet, Südost- und Mitteleuropa im Neolithikum und in der frühen Bronzezeit und ihre Bedeutung für das indoeuropäische Problem. *Przegląd Archeologiczny* 29: 101-149.
- 1992 Zum Verhältnis von Ockergrabkultur und Schnurkeramik. In: M. Buchvaldek, Ch. Strahm (Eds), *Die kontinentaleuropäischen Gruppen der Kultur*

- mit Schnurkeramik. *Schnurkeramik – Symposium 1990, Praehistorica* 19, 341-348. Praha.
- 1994 Die Majkop-Kultur und Mitteleuropa. *Zeitschrift für Archäologie* 28: 191-246.
- 1996 Invasionen aus den nordpontischen Steppen nach Mitteleuropa im Neolithikum und in der Bronzezeit: Realität oder Phantasieprodukt? *Archäologische Informationen* 19: 75-88.
- Häusler A., Toshev G.N.
- 2009 Neue Materialien zu den innenverzierten Steinkisten der frühen Bronzezeit auf der Halbinsel Krim. *Jahresschrift für mitteldeutsche Vorgeschichte* 91(2007): 67-102.
- Heyd V.
- 2011 Yamnaya Groups and Tumuli west of the Black Sea. In: E. Borgna, S. Müller Celka (Eds), *Ancestral Landscapes. Travaux de la Maison de l'Orient et de la Méditerranée* 58: 535-555. Lyon.
- Horváth T.
- 2011 Hajdúnánás –Tedej – Lyukas – halom - An interdisciplinary survey of a typical kurgan from the Great Hungarian Plain region: a case study (The revision of the kurgans from the territory of Hungary). In: A. Patő, A. Barcsi (Eds), *Kurgan Studies. An environmental and archaeological study of burial mounds in the Eurasian Steppe. BAR International Series* 2238, 71-131. Oxford.
- Horváth T., Dani J., Pető A., Pospieszny Ł., Svingor E.
- 2013 Multidisciplinary contributions to the study of Pit Grave Culture kurgans of the Great Hungarian Plain. In: V. Heyd, G. Kulcsár, V. Szeverényi (Eds), *Transition to the Bronze Age. Interregional interaction and socio-cultural change in the third millennium BC. Carpathian Basin and neighbouring regions*, 153-179. Budapest.
- Ivanova M.
- 2008 *Befestigte Siedlungen auf dem Balkan, in der Ägäis und in Westanatolien, ca. 5000-2000 v. Chr., Tübinger Schriften zur ur- und frühgeschichtlichen Archäologie* 8. Münster-New York-München-Berlin.
- Ivanova S.V.
- 2001 *Sotsialnaya struktura naseleniya yamnoy kultury severo-zapadnogo Prichernomoria*. Odessa.
- 2012 *Istoriya naseleniya Severo-Zapadnogo Prichernomoria v kostne IV-III tys. do n.e. Avtoreferat dissertatsii na soiskanie uchenoy stepeni doktora istoricheskikh nauk*. Kiev.



- 2013 Kulturno-istoricheskie kontakty naseleniya Severo-Zapadnogo Prichernomoria v rannem bronzovom veke: Zapad-Vostok. Kulturno-istoricheskie kontakty naseleniya, *Stratum plus* 2: 199-257.

Ivanova S.V., Koško A., Włodarczak P.

- 2014 Komponent tradycji kultur ceramiki sznurowej. Amfory w północno-zachodnio nadczarnomorskich grobach kultury jamowej, In: A. Koško, M. Potupczyk, S. Razumow (Eds), *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w okolicach Jampola, obwód winnicki. Z badań nad północno-zachodnią rubieżą osadnictwa społeczności kręgu kultur „wczesno-brązowych” strefy pontyjskiej*, *Archaeologia Bimaris. Monografie* 6, 351-386. Poznań.

Ivanova S.V., Petrenko V.G., Vetchinnikova N.E.

- 2005 *Kurgany drevnikh skotovodov mezhdurechia Yuzhnogo Buga i Dnestra*. Odessa.

Jakowenko N.

- 2011 *Historia Ukrainy do 1795 roku*. Warszawa.

Jarosz P., Machnik J.

- 2000 Nowe spojrzenie na dawne badania kurhanów w Balicach i Klimkowcach w świetle materiałów archiwalnych i zbiorów Muzeum Archeologicznego w Krakowie. In: J. Rydzewski (Ed.) *150 lat Muzeum Archeologicznego w Krakowie*, 109-133. Kraków.

Jarosz P., Tunia K., Włodarczak P.

- 2009 Burial mound No. 2 in Małyce, the district of Kazimierza Wielka, *Sprawozdania Archeologiczne*, 61: 175-231.

Jarosz P., Włodarczak P.

- 2007 Chronologia bezwzględna kultury ceramiki sznurowej, w Polsce południowo-wschodniej oraz na Ukrainie, *Przegląd Archeologiczny* 55: 71-108.

Jażdżewski K.

- 1936 *Kultura pucharów lejkowatych w Polsce Zachodniej i Środkowej*. Poznań.

Kaczanowska M.

- 1980 Uwagi o surowcach, technice i typologii przemysłu krzemienno-kultury bodrogkereszturskiej i grupy Łańcany. *Acta Archaeologica Carpathica* 20: 19-56.
- 1985 *Rohstoffe, Technik und Typologie der Neolithischen Feuerstein Industrien im Nordteil des Flussgebietes der Mitteldonau*. Warszawa.

Kadrow S. (Ed.)

- 2013 *Bilcze Złote Materials of the Tripolye culture from the Werteba and the Ogród sites*. Biblioteka Muzeum Archeologicznego w Krakowie V. Kraków.

Kadrow S.

- 1998 Osteuropäische Beziehungen des epischnerkeramischen karpatenländischen Kulturkreises in der Frühbronzezeit. In: B. Hänsel, J. Machnik (Eds), *Das Karpatenbecken und die osteuropäische Steppe. Nomadenbewegungen und Kulturaustausch in den vorchristlichen Metallzeiten (4000-500 v. Chr.)*, 253-260. München-Rahden/Westfalen.
- 2000 Wczesnobrązowa wytwórczość metalurgiczna w kształcie wierzbowego liścia. In: J. Rydzewski (Ed.) *150 lat Muzeum Archeologicznego w Krakowie*, 141-152. Kraków.
- 2003 Absolute chronology of the Middle Dnieper culture between the Upper Bug, Vistula and Dniester rivers. In: A. Koško (Ed.), *The foundation of radiocarbon chronology of cultures between the Vistule and Dnieper: 4000-1000 BC*, *Baltic-Pontic Studies* 12: 241-246.

Kadrow S., Machnik A., Machnik J.

- 1992 *Iwanowice, stanowisko Babia Góra, Część II. Cmentarzysko z wczesnego okresu epoki brązu*. Kraków.

Kadrow S., Machnik J.

- 1997 *Kultura mierzanowicka. Chronologia, taksonomia i rozwój przestrzenny*. *Prace Komisji Archeologicznej PAN* 29. Kraków.

Kadrow S., Sokhachiy M., Tkachuk T., Trela E.

- 2003 Sprawozdanie ze studiów i wyniki analiz materiałów zabytkowych kultury trypolskiej z Bilcza Złotego znajdujących się w zbiorach Muzeum Archeologicznego w Krakowie. *Materiały Archeologiczne* 34: 53-143.

Kadrow S., Szmyt M.

- 1996 Absolute chronology of the eastern group of Globular Amphora Culture. In: A. Koško (Ed.) *Eastern Exodus of the Globular Amphora Culture People*, *Baltic-Pontic Studies* 4: 103-111.

Kadrow S., Zakościelna A.

- 2000 Outline of the Evolution of Danubian Cultures in Małopolska and Western Ukraine. In: A. Koško (Ed.) *The western border area of the Tripolye culture*, *Baltic-Pontic Studies* 9: 187-255.

Kaiser E.

- 2003 *Studien zur Katakombengrabkultur zwischen Dnepr und Prut, Archäologie in Eurasien* 14. Mainz am Rhein.

- 2009 Problemy absolutnego datowania katakombnoy kultury Severnogo Prichernomia. *Tyragetia (serie nouă)* 3(18/1): 59-70.
- 2013 Import, imitation and interaction: a critical review of the chronology and significance of cross footed bowls of the third Millennium BC in southern and eastern Europe. In: V. Heyd, G. Kulcsár, V. Szeverényi (Eds), *Transition to the Bronze Age. Interregional interaction and socio-cultural change in the third millenium BC. Carpathian Basin and neighbouring regions*, 139-152. Budapest.

Kamieńska J.

- 1965 Sprawozdanie z badań archeologicznych w Samborcu, pow. Sandomierz, w 1963 roku. *Sprawozdania Archeologiczne* 17: 76-82

Kempisty A.

- 1978 *Schyłek neolitu i początek epoki brązu na Wyżynie Małopolskiej w świetle badań nad kopcami*. Warszawa.
- 1981 Europa od schyłku V do początków II tysiąclecia p.n.e. In: S.K. Kozłowski (Ed.) *Kultury i ludy dawnej Europy*, 71-194. Warszawa.
- 1982 Problem metalurgii miedzi w kulturze ceramiki sznurowej i w kulturach episznurowych na północ od Karpat. *Pamiętnik Muzeum Miedzi* 1: 67-77.

Kempisty E., Sulgostowska Z.

- 1991 Osadnictwo paleolityczne, mezolityczne i paraneolityczne w rejonie Woźnej Wsi, woj. Łomżyńskie. *Polskie Badania Archeologiczne* 30. Warszawa.

Kempisty E., Więckowska H.

- 1970 Badania archeologiczne we wsi Sośnia, pow. Grajewo, *Wiadomości Archeologiczne* 35/2: 164-200.

Kempisty A., Włodarczak P.

- 2000 *Cemetery of Corded Ware culture in Żerniki Górne*. Warszawa.

Kirkowski R.

- 1984 Z badań nad recepcją tradycji kulturowych strefy nadczarnomorskiej wśród społeczeństw Niżu Polski u schyłku III tysiąclecia p.n.e., *Archeologia Polski* 29(1): 57-67.

Klochko V.I.

- 2001a Rozwytok ozbrojenia „shnurovkyh” kultur Ukrainy yak vidobrazhennia etno-kulturnykh protsesiv v rehioni. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds), *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys. przed Chr.*, 241-258. Poznań.
- 2001b *Weaponry of societies of the Northern Potnic culture circle: 5000-700 BC, Baltic-Pontic Studies* 10. Poznań.

Klochko V.I., Koško A. = Kločko V.I., Koško A.

- 2009 The societies of Corded Ware cultures and those of the Black Sea steppes (Yamnaya and Catacomb Grave Cultures) in the route network between the Baltic and Black Seas. In: A. Koško, V.I. Klochko (Eds), *Routes between the seas: Baltic-Bug-Boh-Pont from the 3rd to the Middle of the 1st millennium BC*, *Baltic-Pontic Studies* 14: 269-301.
- 2011 Społeczności kultur ceramiki sznurowej i stepu nadczarnomorskiego (jamowej oraz katakumbowej) w systemie organizacji szlaków bałtycko-pontyjskiego międzymorza. (In:) M. Ignaczak, A. Koško, M. Szmyt (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV-I tys. przed Chr.*, *Archaeologia Bimaris. Dyskusje* 4, 259-284. Poznań.
- 2013 The Baltic Drainage Basin in the Reconstruction of the Mental Map of Central Europe Held in Common by Northern-Pontic Early – Bronze Civilization Communities: 3200-1600 BC.A. outline of the research programme. In: A. Koško, V. Klochko (Eds), *The Ingul-Donets Early Bronze Civilization as Springboard for Transmission of Pontic Cultural Patterns to the Baltic Drainage Basin 3200 – 1750 BC*. *Baltic-Pontic Studies* 18: 9-20.

Kobusiewicz M.

- 1988 Zabytki krzemienne i kamienne z cmentarzyska kultury łużyckiej w Laskach (Aneks). In: T. Malinowski, *Laski. Materiały z cmentarzyska kultury łużyckiej. Część I*, 75-83. Słupsk.

Koltukhov S.G., Toshchev G.N.

- 1998 *Kurgannye drevnosti Kryma II (po materialam raskopok Severo-Krymskoy ekspeditsii v 1993-1995 gg.)*. Zaporozhe.

Koman W.

- 1985 Sépulture à inhumation no III, Czerniczyn 3, comm. de Hrubieszów. In: A. Kokowski, W. Koman, *Néolithique et la période romaine aux environs de Hrubieszów, Pologne de l'Est. Inventaria Archaeologica. Pologne, fasc. LIV*, pl. 334. Warszawa-Łódź.
- 1987 Husynne Kolonia, stan. 6, gm. Hrubieszów. In: Zespół WOAK (Eds), *Sprawozdania z badań terenowych w woj. zamojskim w 1987 roku*, 23-25. Zamość.
- 1994 Zniszczony grób kultury strzyżowskiej z Horodła stan. 12, gm. Horodło, woj. Zamość. In: M. Bienia (Ed.) *Najważniejsze odkrycia archeologiczne w Polsce środkowowschodniej w 1993 roku*, 37-39. Biała Podlaska.

Koman W., Niedźwiedź J.

- 1998 Badania ratownicze na wielokulturowych stanowiskach nr 11 i 12 w Jankach Dolnych, woj. Zamojskie, *Archeologia Polski Środkowowschodniej* 3: 86-91.



Kondracki J.

1969 *Podstawy regionalizacji fizyczno-geograficznej*. Warszawa.

Kopacz J.

1986 Cmentarzysko kultury ceramiki sznurowej w Wójeczce, woj. Kielce, *Sprawozdania Archeologiczne* 38: 139-151.

2001 *Początki epoki brązu w strefie karpackiej w świetle materiałów kamiennych*. Kraków.

Kośko A.

1988 Rozwój kulturowy społeczeństw Kujaw w okresach późnego neolitu oraz interstadium epok neolitu i brązu w aspekcie recepcji egzogennych wzorców kulturowych. In: A. Cofta-Broniewska (Ed.) *Kontakty pradziejowych społeczeństw Kujaw z innymi ludami Europy*, 145-183. Inowrocław.

1990 The Migration of Steppe and Forest-steppe Communities into Central Europe. *The Journal of Indo-European Studies* 18(3/4): 309-329.

1991 The Vistula-Oder Basins and North Pontic Region. *The Journal of Indo-European Studies* 19(3/4): 235-257.

1992 Z badań nad tzw. horyzontem starsznurowym w rozwoju późnoneolitycznej kultury społeczeństw Kujaw. *Acta Universitatis Lodziensis, Folia Archaeologica* 16: 85-95.

2000 From research into the issue of the development dependencies of the Corded Ware culture and Yamnaya Culture. In: S. Kadrow (Ed.) *A Turning of Ages. Jubilee Book Dedicated to Professor Jan Machnik on His 70th Anniversary*, 337-346. Kraków.

2001 Z badań nad genezą rytuałów kremacji w bałkańsko-środkowoeuropejskim kręgu kulturowym. In: B. Ginter, B. Drobniewicz, B. Kazior, M. Nowak, M. Połtowicz (Eds), *Problemy epoki kamienia na obszarze Starego Świata. Księga jubileuszowa dedykowana Profesorowi Januszowi K. Kozłowskiemu*, 405-412. Kraków.

2002 Fluted Maces in Cultural System of the Borderland of Eastern and Western Europe: 2350-800 BC. Taxonomy, genesis, function. In: A. Kośko (Ed.) *Fluted Maces in the System of Long Distance Exchange Trails of the Bronze Age: 2350-800 BC. Baltic-Pontic Studies* 11: 31-81.

2011 Z badań nad kontekstem kultur wczesnobrązowych strefy pontyjskiej w rozwoju społeczności środkowoeuropejskich obszaru dorzecza Wisły w III tys. BC. In: U. Stankiewicz, A. Wawrusiewicz (Eds), *Na rubieży kultur. Badania nad okresem neolitu i wczesną epoką brązu*, 183-194. Białystok.

Kośko A., Klochko V.I. = Kośko A., Kložko V.I.

1991 Bożejewice, gm. Strzelno, woj. Bydgoszcz, stanowisko 8. Kurhan z późnego okresu epoki neolitu. *Folia Praehistorica Posnaniensia* 4: 119-144.

- 2009 Transit routes between the Baltic and Black Seas: early development stages – from the 3rd to the middle of the 1st Millennium BC. A. outline of research project. In: A. Koško, V.I. Klochko (Eds), *Routes between the seas: Baltic-Bug-Boh-Pont from the 3rd to the Middle of the 1st Millennium BC*, *Baltic-Pontic Studies* 14: 9-18.
- 2011 Szlaki tranzytowe bałtycko-pontyjskiego międzymorza, wczesne etapy rozwoju: IV/III – połowa I tys. przed Chr. Zarys projektu badawczego. In: M. Ignaczak, A. Koško, M. Szmyt (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV – I tys. przed Chr.*, *Archaeologia Bimaris Dyskusje* 4, 11-18. Poznań.
- Koško A., Klochko V.I., Olszewski A.
- 2012 Ritualniy obiekt naselennia prichornomorskoyi kulturnoyi spilnoty doby rannoyi bronzы na r. Sian, *Arkheolohia* 2: 67-75.
- Koško A., Langer J.J., Szmyt M.
- 2000 Painted Pottery as a symptom of Tripolye “influence” in the circle of Neolithic Vistula cultures. In: A. Koško (Ed.) *The Western Border Area of the Tripolye Culture*, *Baltic-Pontic Studies* 9: 282-288.
- Koško A., Potupczyk M., Razumow S. (Eds)
- 2014 *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w okolicach Jampola, obwód winnicki. Z badań nad północno-zachodnią rubieżą osadnictwa społeczności kręgu kultur „wczesnobrązowych” strefy pontyjskiej. Badania z lat 1984 -2014*, *Archaeologia Bimaris. Monografie* 6. Poznań.
- Koško A., Sikorski A., Szmyt M.
- 2010 „Corded” and „Corded-Like” Ornamentation in the Vistula and Dnieper Interfluvial Region in the 5th – 4th Mill. BC. Introduction to Interdisciplinary Research. In: Koško A., Szmyt M. (Eds), *“Cord” Ornaments on Pottery in the Vistula and Dnieper Interfluvial Region: 5th-4th Mill. BC*, *Baltic-Pontic Studies* 15: 13-48.
- Koško A., Szmyt M.
- 2009 Central European Lowland Societies and the Pontic Area in the 4th – 4th/3rd Millennium BC. In: A. Koško, V.I. Klochko (Eds), *Routes between the seas: Baltic-Bug-Boh-Pont from the 3rd to the Middle of the 1st Millennium BC*, *Baltic-Pontic Studies* 14: 191-213.
- 2011 Udział społeczności Niżu Środkowoeuropejskiego w poznaniu środowisk biokulturowych Płyty Nadczarnomorskiej: IV–IV/III tys. BC. In: M. Ignaczak, A. Koško, M. Szmyt (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV–I tys. przed Chr.*, *Archaeologia Bimaris. Dyskusje* 4, 205-222. Poznań.

Kozłowski J. K.

- 1999 Epoka miedzi w Europie i na Bliskim Wschodzie. In: J.K. Kozłowski (Ed.) *Prehistoria, Encyklopedia Historii Świata, tom I*, 173-192. Kraków.

Kozłowski L.

- 1923 *Epoka kamienia na wydmach wschodniej części Wyżyny Małopolskiej. Archiwum Nauk Antropologicznych* 2(3). Lwów-Warszawa.

Kruk J.

- 1973 *Studia osadnicze nad neolitem wyżyn lessowych*. Wrocław-Warszawa-Kraków-Gdańsk.  
2009 *Wzory przeszłości studia nad neolitem środkowym i późnym*. Kraków.

Kruk J., Milisauskas S.

- 1999 *Rozkwit i upadek społeczeństw rolniczych neolitu*. Kraków.

Krywalciewicz M.

- 2007 *Prorwa I. Cmentarzysko z połowy III – początku II tysiąclecia przed Chr. na górnym Naddnieprzu. Archaeologia Bimaris. Monografie*. Poznań.

Krzak Z.

- 1958 Cmentarzysko kultury złockiej na stanowisku Grodzisko II we wsi Złota, pow. Sandomierz, *Archeologia Polski* 2(2): 329–388.  
1961 *Materiały do znajomości kultury złockiej*. Wrocław.  
1970 *Cmentarzysko kultury złockiej „Nad Wawrem” w Złotej*. Wrocław.  
1976 *The Złota Culture*. Wrocław-Warszawa-Kraków-Gdańsk.  
1980 From studies of the origin of the Corded Ware culture. *Przegląd Archeologiczny* 28: 187-209.

Kuna M., Matoušek V.

- 1978 Měděná industries kultury zvoncovitých pohárů ve střední Evropě. *Praehistorica VII*: 68-89.

Kuśnierz J.

- 1987 Sprawozdanie z badań wykopaliskowych przeprowadzonych na cmentarzysku kurhanowym kultury trzcinieckiej w Tyszowcach w sezonie 1987. In: *Sprawozdania z badań terenowych w województwie zamojskim w 1987 roku*, 11-14. Zamość.

Lakiza V.L.

- 2008 *Starazhytnasti pozniaga nealitu i ranniaga peryiadu bronzavaga veku Belaruskaga Paniamonnia*. Minsk.

Latynin B.A.

- 1967 Molotochkovidnye bulavki, ikh kulturnaya atributsiya i datirovka. *Arkheologicheskiiy sbornik* 9: 5-95.

Lech J., Młynarczyk H.

- 1981 Uwagi o krzemieniarstwie społeczności wstęgowych i wspólnot kultury pucharów lejkowatych. Próba konfrontacji. In: T. Wiślański (Ed.), *Kultura pucharów lejkowatych w Polsce (studia i materiały)*, 11-36. Poznań.

Levytskyi I.F.

- 1930 Domovyna kintsa neolitichnoyi doby na poberezhzhi seredniyi techi r. Sluchi (s. Kolodiazhne na Volyni). In: *Zapysky Vseukrainskoho arkeologichnoho komitetu* 1 (1930), 157-178.

Libera J.

- 2001 *Krzemienne formy bifacjalne na terenach Polski i zachodniej Ukrainy (od środkowego neolitu do wczesnej epoki żelaza)*. Lublin.
- 2006a Analiza inwentarzy krzemiennych uzyskanych w trakcie badań wykopaliskowych stanowiska 2 kultury łużyckiej w Siedliszczu, pow. Chełmski, *Archeologia Polski Środkowowschodniej* 8: 293-306.
- 2006b Kraina krzemieniem usiana. In: E. Banasiewicz-Szykuła (Ed.), *Badania archeologiczne na Polesiu Lubelskim*, 49-60. Lublin.
- 2009 Materiały krzemienne z badań kurhanów kultury ceramiki sznurowej na Grzędzie Sokalskiej (aneks). In: J. Machnik, W. Koman, J. Bagińska, *Neolityczne kurhany na Grzędzie Sokalskiej w świetle badań archeologicznych w latach 1988-2006 (z aneksami Jerzego Libery i Lucjana Gazdy)*, 283-308. Kraków.
- 2010 Krzemienne „groty”, „sztylety” oraz „sierpy” w dorzeczu Sanu (przyczynek do studiów nad wybranymi wytworami krzemieniarstwa kultury mierzanowickiej). *Rocznik Przemyski* 46(2), *Archeologia*: 3-29.

Libera J., Dobrowolski R., Szeliga M., Wiśniewski T.

- 2014 Flints in glacial sediments of Chełm Hills, Eastern Poland. *Sprawozdania Archeologiczne* 66.

Libera J., Zakościelna A.

- 2006 Inwentarze krzemienne z grobów grupy południowo-wschodniej kultury pucharów lejkowatych. In: J. Libera, K. Tunia (Eds), *Idea megalityczna w obrządku pogrzebowym kultury pucharów lejkowatych*, 135-169. Lublin-Kraków.
- 2011 Cyrkulacja krzemienia wołyńskiego w okresie neolitu we wczesnej epoce brązu na ziemiach polskich. In: M. Ignaczak, A. Kosko, M. Szmyt (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV-I tys. przed Chr., Archaeologia Bimaris. Dyskusje* 4, 83-115. Poznań.
- 2014 Retusz ryńienkowaty w eneolicie i wczesnej epoce brązu na ziemiach polskich. *Prace Archeologiczne* 65: 209-233.



Lichardus J., Lichardus-Itten M.

- 1995 Kupferzeitliche Silexspitzen im nord- und westpontischen Raum. In: J. Lech (Ed.) *Special Theme: Flint Mining dedicated to the Seventh International Flint Symposium – Poland 1995*, *Archaeologia Polona* 33: 223-240.

Liguzińska-Kruk Z.

- 1989 Kurhan kultury ceramiki sznurowej w Pałecznicy, woj. Kielce, *Sprawozdania Archeologiczne* 40: 113-127.

Lobay B.I.

- 1985 *Otchet o raskopkakh Vinnitskogo kraevedcheskogo muzeya v 1884 godu. Held in the archives of N.I. NAN Ukrainy*. 1985/144 (22299). Kiev.

Lomborg E.

- 1973 *Die Flintdolche Dänemarks. Studien über Chronologie und Kulturbeziehungen des südsandinavischen Spätneolithikums. Nordiske Fortidsminder*, Serie B – in quarto, Bind 1. København.

Łysenko S., Szmyt M.

- 2011 Środkowe Naddnieprze jako graniczny areał osadnictwa ludności kultury amfor kulistych. In: Ignaczak M., Koško A., Szmyt M. (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV – I tys. przed Chr.* *Archaeologia Bimaris. Dyskusje* 4, 239-246. Poznań.

Machnik J.

- 1966 *Studia nad kulturą ceramiki sznurowej w Małopolsce*. Wrocław-Warszawa-Kraków.
- 1978 Wczesny okres epoki brązu. In: A. Gardawski, J. Kowalczyk (Eds), *Wczesna epoka brązu, Prahistoria Ziemi Polskiej* vol. III, 9-136. Wrocław-Warszawa-Kraków-Gdańsk
- 1979a Ze studiów nad kulturą ceramiki sznurowej w dorzeczu górnego Dniestru. *Acta Archaeologica Carpathica* 19: 51-71.
- 1979b Krąg kulturowy ceramiki sznurowej. In: W. Hensel, T. Wiślański (Eds), *Prahistoria ziem polskich*, vol. II, 337-411. Wrocław-Warszawa-Kraków-Gdańsk.
- 1987 *Kultury z przełomu eneolitu i epoki brązu w strefie karpackiej*. Prace Komisji Archeologicznej / PAN 26. Wrocław.
- 1994 Dwa nurty rozwoju kultury ceramiki sznurowej w Małopolsce. *Sprawozdania Archeologiczne* 46: 7-12.
- 1997a Zwei Entwicklungswege der Schnurkeramikkultur in den Flussgebieten der oberen Weichsel, Bug und Dniestr. In: P. Siemen (Ed.), *Early Corded Ware culture. The A-Horizon – fiction or fact?*, 147-156. Esbjerg.

- 1997b Zaskakujące odkrycie zabytków kultury środkowodnieprzańskiej w Młodowie-Zakąciu koło Lubaczowa, w woj. przemyskim, *Sprawozdania Archeologiczne* 49: 143-170.
- 1998 Stan i perspektywy badań kultury ceramiki sznurowej w międzyrzeczu górnej Wisły, Bugu i Dniestru. *Sprawozdania Archeologiczne* 50: 13-29.
- 1999 Radiocarbon chronology of the Corded Ware culture on Grzeda Sokalska. A Middle – Dnieper traits perspectives, In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures Between the Vistula and Dnieper in 3150-1850 BC, Baltic-Pontic Studies* 7: 221-250.
- 2006 Rola migracji w pradziejach. Problemy dyskusyjne. In: A. Fudala, W. Wysocki (Eds), *Migracje: dzieje, typologia, definicje*, 29–37. Wrocław.
- 2011 Znaczenie archeologicznych badań ratowniczych na trasie planowanej budowy autostrady A4 na odcinku Przeworski-Radymno dla znajomości problematyki schyłku neolitu i początków epoki brązu. In: S. Czopek (Ed.), *Autostradą w przeszłość*, 61-78. Rzeszów.
- Machnik J., Bagińska J., Koman W.
- 2001 Nowa, synkretyczna grupa kultury ceramiki sznurowej w Polsce środkowo-wschodniej. In: B. Ginter, B. Drobniewicz, B. Kazior, M. Nowak, M. Połtowicz (Eds), *Problemy epoki kamienia na obszarze Starego Świata, Księga Jubileuszowa dedykowana Januszowi K. Kozłowskiemu*, 389-400. Kraków.
- 2008 Przykłady synkretyzmu kulturowego u schyłku neolitu w świetle źródeł archeologicznych. In: J. Bednarczyk, J. Czebreszuk, P. Makarowicz, M. Szmyt (Eds), *Na pograniczu światów. Studia z pradziejów międzymorza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Koško w 60. rocznicę urodzin*, 321-329. Poznań.
- 2009 *Neolityczne kurhany na Grzędzie Sokalskiej w świetle badań archeologicznych w latach 1988-2006. Z aneksami Jerzego Libery i Lucjana Gazdy*. Kraków.
- Machnik J., Bajda-Wesołowska A., Hozer M.
- 2013 *Opracowanie ratowniczych badań wykopaliskowych na stanowisku 5 w Szczytnej, Archiwum Narodowego Instytutu Dziedzictwa w Warszawie*. Rzeszów.
- Machnik J., Pavliv D., Petehyryč V.
- 2006a Barrow of the late Corded Ware culture from Bikiv, Drohobyč district. In: K. Harmata, J. Machnik, L. Starkel (Eds), *Environment and man at the Carpathians foreland in the upper Dnister catchment from Neolithic to Early Mediaeval period, Prace Komisji Prehistorii Karpat PAU* 3, 195-227. Kraków.

- 2006b Recapitulation of Results of the Archaeological Research and Outline of the History of the Earliest Settlement. In: K. Harmata, J. Machnik, L. Starkel (Eds), *Environment and Man at the Carpathian Foreland in the Upper Dnister Catchment from Neolithic to Early Mediaeval Period*, *Prace Komisji Prehistorii Karpat PAU* 3, 228-243. Kraków.

Machnik J., Pawliw D., Petehyrycz W.

- 2011 *Prahistoryczne kurhany we wsi Haji Nyžni koło Drohobycza*. Kraków.

Machnik J., Pilch A.

- 1997 Zaskakujące odkrycie zabytków kultury środkowodnieprzańskej w Młodowie-Zakąciu koło Lubaczowa w woj. Przemyskim, *Sprawozdania Archeologiczne* 49: 143-170.

Machnik J., Sosnowska E.

- 1996 Starożytna mogiła z początku III tysiąclecia przed Chrystusem, ludności kultury ceramiki sznurowej w Średniej, gm. Krzywca, *Rocznik Przemyski* 32(3): 3-28.
- 1998 Kurhan ludności kultury ceramiki sznurowej z przełomu III i II tysiąclecia przed Chrystusem w Woli Węgierskiej, gm. Rożwienica, woj. przemyskie, *Rocznik Przemyski* 34/3: 3-20.

Machnik J., Ścibior J.

- 1991 Die chronologie der Schnurkeramikkultur (SchK) in Südostpolen, In: M. Buchvaldek, Ch. Strahm (Eds), *Die kontinentaleuropäischen Gruppen der Kultur mit Schnurkeramik. Die Chronologie der regionalen Gruppen*, 45-54. Freiburg i Br.

Machnik J., Tkaczuk T. K.

- 2003 Interesting and important artifacts from the beginning of the Bronze Age in the vicinity of Halicz (upper basin of the Dnestr River). In: E. Jerem, P. Raczy (Eds), *Morgenrot der Kulturen. Frühen Etappen der Menschheitsgeschichte in Mittel- und Südosteuropa. Festschrift für Nándor Kalicz zum 75. Geburtstag*, 483-496. Budapest.

Makarowicz P.

- 2010 *Trzciniecki krąg kulturowy – wspólnota pogranicza Wschodu i Zachodu Europy*. *Archaeologia Bimaris. Monografie*. Poznań.

Makohonienko M.

- 2011 Przyrodnicze aspekty pradziejowych i wczesnohistorycznych szlaków tranzytowych bałtycko-pontyjskiej przestrzeni kulturowe. In: A. Koško, V. Klochko (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki między morza IV-I tys. przed Chr.*, *Archaeologia Bimaris. Dyskusje* 4, 21-60. Poznań.

Makohonienko M., Hildebrandt-Radke I.

- 2014 Kontekst przyrodniczy i perspektywy studiów paleośrodowiskowych stanowiska kultury jamowej w Pidlisiwce nad Dniestrem, zachodnia Ukraina. In: A. Koško, M. Potupczyk, S. Razumow (Eds), *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w okolicach Jampola, obwód winnicki. Z badań nad północno-zachodnią rubieżą osadnictwa społeczności kręgu kultur „wczesnobrzązowych” strefy pontyjskiej. Badania z lat 1984 -2014. Archaeologia Bimaris. Monografie 6*, 247-274. Poznań.

Maleev Y. M.

- 1980 Vostochniye rubiezhy rasprostraneniya kultury sharovidnykh amfor. In: *Problemy eneolita stepnoy i lesostepnoy polosy Vostochnoy Evropy. Teziy sy dokladov*, 30-31. Orenburg.

Mallory J.P.

- 1989 *In Search of Indo-Europeans. Language, Archaeology and Myth*. London.

Małecka-Kukawka J., Kukawka S.

- 1984 Krzemienne groty strzał kultury pucharów lejkowatych na Pomorzu. *Acta Universitatis Nicolai Copernici. Archeologia* 8: 3-34.

Manasterski D.

- 2009 *Pojezierze Mazurskie u schyłku neolitu i na początku epoki brązu w świetle zespołów typu Zabie-Szeszno*. Warszawa.

Manolakakis L.

- 2005 Les industries litiques énéolitiques de Bulgarie. *Internationale Archäologie* 88. Rahden.

Marciniak J.

- 1961 Materiały neolityczne z Żukowa, pow. Sandomierz, *Materiały Archeologiczne* 2: 43-55.

Markovin V.I.

- 1990 Spornye voprosy v etnogeneticheskom izuchenii drevnostey severnogo Kavkaza (maikopskaya kultura). *Sovetskaya Arkheologiya* 4: 106-122.  
1994 Dolmeny Zapadnogo Kavkaza. In: *Epokha bronzы Severnogo Kavkaza*, 226-253. Moskva.

Melnyk O., Steblyna I.

- 2012 *Kurhany Kryvorizhzhia*. Kryvyi Rih.  
2013 *Yamna kultura serednoyi techiyi Ingultsia*. Kryvyi Rih.

Merpert N. Ya.

- 1968 *Drevneyshaya istoriya naseleniya stepnoi polosy Vostochnoy Evropy (III - nachalo II tys. do n.e.)*. Moskva.



1974 *Drevneishie skotovody Volgo-Uralskogo mezhdurechia*. Moskva.

Mihăilescu-Bîrliba V.

- 2001 Mormântul unei tinere căpetenii de la începutul Epocii Bronzului (Mastacăn, jud. Neamț – «Cultura Amforelor Sferice»). *Memoria Antiquitatis. Acta Musei Petrodavensis* 22: 157-217.

Mihăilescu-Bîrliba V., Szmyt M.

- 2003 Radiocarbon Chronology of the Moldavian (Siret) Subgroup of the Globular Amphora Culture. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 4000-1000 BC, Baltic-Pontic Studies* 12: 82-112.

Mitura P.

- 2001 Materiał krzemienisty z cmentarzyska w Pysznicy – analiza. In: S. Czopek, *Pysznica pow. Stalowa Wola stanowisko 1 – cmentarzysko ciałopalne z przełomu epok brązu i żelaza*, 215-217 + [tabl. LXXXVI-XC]. Rzeszów.

Młynarczyk H.

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

Movsha T.G.

- 1971 O severnoy gruppe pozdnetripolskikh pamiatnikov. *Sovetskaya arkheologiya* 5: 31-54.

Munchaev R.M.

- 1994 Maykopskaya kultura. In: *Epokha bronzы Severnogo Kavkaza*, 158-225. Moskva.

Niedźwiedź E., Niedźwiedź J., Kalisz J., Panasiewicz J.

- 2010 *Dzieje miejscowości gminy Mircze, powiat hrubieszowski*. Hrubieszów–Zamość.

Niedźwiedź J.

- 1999 Trzeci sezon badań na stanowisku wielokulturowym w Jankach Dolnych stan. 11, pow. Hrubieszów. *Archeologia Polski Środkowowschodniej* 4: 67-71.

Niesiołowska E.

- 1967 Materiały neolityczne ze stanowiska 6 w Pikutkowie, pow. Włocławek, *Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi* 14: 79-143.

Niezabitowska-Wiśniewska B., Wiśniewski T.

- 2011 Kurhany kultury ceramiki sznurowej na stanowisku 3 w Ulowie, pow. tomaszowski, (in:) H. Kowalewska-Marszałek, P. Włodarczak (Eds), *Kurhany i obrządek pogrzebowy w IV-II tysiącleciu p.n.e.*, 329-369. Kraków, Warszawa.

Nikolaeva N.A.

- 1981 Periodyzatsiya kubano-terskoy kultury. Istoricheskiye sudby KTK v katakombnuyu epokhu. In: *Katakombnye kultury severnogo Kavkaza*, 77-100. Ordzhonikidze.
- 2011 *Etno-kulturnye protsessy na Severnom Kavkaze w III-II tys. do n.e. v kontekste drevney istorii Evropy i Blizhnego Vostoka*. Moskva.

Nikolaeva N., Safronov V.

- 1974 Proiskhozhdeniye dolmennoy kultury Severo-Zapadnogo Kavkaza. In: *Voprosy okhrany, klassifikatsii i ispolzovaniya arkheologicheskikh pamyatnikov*, 174-198. Moskva.

Nikolova A.V.

- 2012 Absolutna khronologiya yamnoy kultury pivnichnoho Nadchornomoria v svitli dendrodat. *Arkheolohiya* 4: 14-31.

Nikolova L.

- 1999 *The Balkans in Later Prehistory, BAR International Series 791*. Oxford.

Nosek S.

- 1967 *Kultura Amfor Kulistych w Polsce*. Wrocław.

Okhrimenko H.

- 2006 Pamiatky stzhyzhovskoyi kultury na Volyni ta Volynskomy Polissi. In: H. Okhrimenko, N. Skliarenko, V. Tkach (Eds), *Narysy kultury davnoyi Volyni*, 404-413. Luts'k.
- 2007 Osoblyvosti stzhyzhovskoyi kultury Volyni ta Volynskoho Polissia. In: H. Okhrimenko, M. Kuchynko, N. Skliarenko, I. Shovkovych (Eds), *Oleksandr Tsynkalovskiy ta praistoriya Volyni*, 425-456. Luts'k.
- 2010 *Pripontys'ki etnokul'turni vplyvi na teritoriyi zakhidnoyi Volyni za doby bronzii*. In: L.D. Strocen', M.O. Yagodins'ka (Eds) *Aktual'ni problemy arheologiy. Tezi mizhnarodnoy naukovoï konferentsiyi na poshanu I.S. Vinokura (m. Kam'yanec' Podil's'liy 2010 roku)*, 32-34. Ternopil'-Aston.

Okhrimenko H., Skliarenko N.

- 2010 *Vivtchennya nam'yatok stzhizhovs'koy kul'turi*. In: *Minule i suchasne Volyni ta Polissya. Storinky istoriyi Kamin'-Kashyshchyni*, 236-239. Luc'k.

Okulicz J.

- 1973 *Pradzieje ziem pruskich od późnego paleolitu do VII w. n.e.* Wrocław-Warszawa-Kraków-Gdańsk

Otroschenko V.V.

- 1998 Fenomen kistanykh priazhok. In: G.N. Toshev (Ed.), *Problemy izucheniya katakombnoy kulturno-istoricheskoy obschnosti (KKIO) i kulturno-istoricheskoy obschnosti mnogovalikovoy keramiki (KIOMK)*, 113-117. Zaporozhe.

Ossowski G.

- 1886 Przyczynek do wiadomości o grotach krzemiennych znajdujących na ziemiach dawnej Polski. *Zbiór Wiadomości do Antropologii Krajowej* 10: 24-37.

Pasterkiewicz W., Pozikhovski A., Rybicka M., Verteletskyi D.

- 2013 Z badań nad problematyką oddziaływań kręgu bałeńskiego na wschodnie rejony Wyżyny Wołyńskiej. In: A. Pozikhovski, J. Rogoziński, M. Rybicka (Eds), *Na pograniczu kultury pucharów lejkowatych i kultury trypolskiej*, 251-292. Rzeszów.

Patö A., Barczy A. (Eds)

- 2011 *Kurgan Studies. An environmental and archaeological study of burial mounds in the Eurasian Steppe. BAR International Series 2238.* Oxford.

Păunescu Al.

- 1970 *Evoluția uneltelor și armelor de piatră cioplită descoperite pe teritoriul României, Biblioteca de Arheologie XV.* București.

Pelisiak A.

- 1991 Osada z początków epoki brązu w Sięganowie (stan. 3), woj. sieradzkie. *Sprawozdania Archeologiczne* 43: 152-165.  
2002 Osada kultury pucharów lejkowatych w Grójcu Wielkim, stan. 1, woj. łódzkie. *Sprawozdania Archeologiczne* 54: 81-106.

Peška J.

- 2004 Žárové hroby kultury se šňůrovou keramikou na Moravě. In: E. Kazdová, Z. Měřínský, K. Šabatová (Eds), *K poctě Vladimíru Podborskému. Přátelé a žáci k sedmdesátým narozeninám*, 191-205. Brno.

Petrenko V.G.

- 1989 Usatovskaya lokalna gruppа. In: *Pamiatniki tripolskoy kultury v Severo-Zapadnom Prichernomorie*, 81-124. Kiev.

Popova T. A.

- 1980 Kremneobrabatyvayuscheoproizvodstvotripolskikhplemen (po materialam poseleniya Polivanov Yar). In: *Pervobytnaya arkheologiya – poiski i nakhodki: sbornik nauchnykh trudov*, 145-163. Kiev.
- 2003 *Mnogosloynoe poselenie Polivanov Yar. K evoliutsii tripolskoy kultury v Sednem Podnestrovie*. Sankt Peterburg.

Pośpieszny Ł.

- 2009 *Zwyczaje pogrzebowe społeczności kultury ceramiki sznurowej w Wielkopolsce i na Kujawach*. Poznań.
- 2012 *Praktyki ceremonialne na Niżu w międzyrzeczu Odry i Wisły w III tys. przed Chr. (manuscript of PhD dissertation, Institute of Prehistory AMU in Poznań)*. Poznań.

Prinke D., Przybył A.

- 2005 Osadnictwo najstarszych mieszkańców powiatu obornickiego: społeczności z epoki kamienia (od ok. 11050-9950 do ok. 2300 przed Chr.). In: T. Skorupka (Ed.), *Archeologia powiatu obornickiego*, 11-124. Oborniki-Rogoźno-Ryczywół.

Rassamakin J. Ja. = Rassamakin Y.Ya.

- 1991 O sootnoshenii stepnykh i novosvobodnenskikh pamiatnikov. In: *Maikopskiy fenomen v drevney istorii Kavkaza i Vostochnoy Evropy (teziy dokladov)*, 52-55. Leningrad.
- 1996 On Early Elements of the Globular Amphora Culture and Other European Cultures in the Late Eneolithic of the Northern Black Sea region. In: A. Koško (Ed.): *Eastern Exodus of the Globular Amphora People, Baltic-Pontic Studies* 4: 112-132.
- 2004 *Die nordpontische Steppe in der Kupferzeit. Gräber aus der Mitte des 5. Jts. bis Ende des 4. Jts. v.Chr., Archäologie in Eurasien* 17. Mainz.
- 2013 From the Late Eneolithic period to the Early Bronze Age in the Black Sea steppe: what is the Pit Grave Culture (late fourth to mid-third millennium BC)? In: V. Heyd, G. Kulcsár, V. Szeverényi (Eds), *Transition to the Bronze Age. Interregional interaction and socio-cultural change in the third millennium BC. Carpathian Basin and neighbouring regions*, 113-138. Budapest.

Rassamakin Y.Y., Evdokimov G.L.

- 2011 O severnoy granitse raspostraneniya pogrebeniy v kamennykh yaschykakh epokhi ranney bronzы. In: *Materialy ta doslidzhennia z arkheolohii Skhidnoyi Ukrainy* 11: 80-95. Lugansk.



Rassamakin Y.Y., Nikolova A.V.

- 2008 Carpathian Imports in the Graves of the Yamnaya Culture on the Lower Dnieper. Some Problems of Chronology and Connections in the Black Sea Steppes During the Early Bronze Age. In: P.F. Biehl, Y. Ya. Rassamakin (Eds), *Import and imitation in archaeology*, 51-87. Langweissbach.

Rauhut D.

- 1953 Grób kultury ceramiki sznurowej (grupa złocka), znaleziony na stanowisku Pole Grodzisko I we wsi Złota, powiat Sandomierz. *Wiadomości Archeologiczne* 19: 54-77.

Razumov S.M.

- 2011 *Flint Artefacts of Northern Pontic Populations of the Early and Middle Bronze Age: 3200-1600 BC*, *Baltic-Pontic Studies* 16.

Rejniewicz Ł.

- 2009 Groby kultury ceramiki sznurowej odkryte w 2005 i 2006 roku na Sławinku w Lublinie. In: H. Taras, A. Zakościelna (Eds), *Hereditas praeteriti. Additamenta Archaeologia et historia dedicata Ioanni Gurba Octogesimo Anno Nascendi*, 181-188. Lublin.

Rezepkin A.D.

- 1987 K interpretatsii rospisi iz grobnitsy maikopskoy kultury bliz stanitsy Novosvobodnaya. *Kratiye soobscheniye Instituta Arkheologii* 192: 26-33.
- 1991a Kurgan 31 mogilnika Klady. Problemy genezisa i khronologii maikopskoy kultury. In: *Drevniye kultury Prikubania*, 167-197. Leningrad.
- 1991b Kulturno-khronologicheskiye aspekty proiskhozhdeniya i razvitiya maikopskoy kultury. In: *Maikopskiy fenomen v drevney istorii Kavkaza i Vostochnoy Evropy (tezisy dokladov)*, 20-22. Leningrad.
- 2000 Das Frühbronzezeitliche Gräberfeld von Klady Und die Majkop-Kultur in Nordwestkaukasien. *Archäologie in Eurasien* 10. Rahden/Westf.

Robinson Ch., Baczyńska B., Polańska M.

- 2004 The Origins of Faience in Poland. *Sprawozdania Archeologiczne* 56: 79-154.

Rogozińska-Goszczyńska R.

- 1965 Sprawozdanie z badań na cmentarzysku kurhanowym kultury trzcinieckiej w Guciowie, pow. Zamość, w sezonie wykopaliskowym 1963. *Sprawozdania Archeologiczne* 17: 93-98.

Rola J.

- 2009 *Późnoneolityczny węzeł komunikacyjny w strefie środkowej Noteci (Żuławka Mała, gmina Wyrzysk)*. Poznań.

Rozdobudko M.V., Yurchenko O.V.

- 2005 Znakhidki kuliastykh amfor na livoberezhzhi Serednioho Dnipra. In: *Arkheolohichni doslidzhennia na Ukraini 2003-2004 rr.*, 276-279. Zaporizhzhia.

Róžańska M.

- 2011 Zbrojniki kultury Zedmar na przykładzie stanowisk Dutka 1 i Szczepanki 8 na Mazurach. In: U. Stankiewicz, A. Wawrusiewicz (Eds), *Na rubieży kultur. Badania nad okresem neolitu i wczesną epoką brązu*, 333-342. Białystok.

Rybicka M.

- 1995 *Przemiany kulturowe i osadnicze w III tys. przed Chr. na Kujawach. Kultura pucharów lejkowatych i amfor kulistych na Pagórach Radziejowskich*. Łódź.

Schmidt-Thielber E.

- 1955 Ein Friedhof der frühen Bronzezeit bei Nohra, Kr. Nordhausen, *Jahresschrift für Mitteldeutsche Vorgeschichte* 39: 93-114.

Shaposhnikova O.G.

- 1985 Yamnaya kulturno-istoricheskaya obshchnost. In: *Arkheologiya Ukrainskoy SSR* vol. 1, 336-352. Kiev.

Shaposhnikova O.G., Fomenko V.N., Dovzhenko N.D.

- 1986 Yamnaya kulturo-istoricheskaya oblast (yuzhnobugskiy variant). *Svod arkheologicheskikh istochnikov* 1-3. Kiev.

Shishlina N.I., Zazovskaya E.P., van der Plicht J., Hedges R.E.M., Sevastyanov V.S., Chichagova O.G.

- 2009 Paleoecology, Subsistence, and 14C Chronology of the Eurasian Caspian Steppe Bronze Age. *Radiocarbon* 51: 481-499.

Shmagliy N.M., Cherniakov I.T.

- 1970 Raskopki kurganov epokhi bronzы v Tatarbunarskom rayonene Odesskoy oblasti v 1965 g., *Sovetskaya arkheologiya* 1: 109-120.

Shchepinskiy A.A.

- 1963 Pamiatniki isskustva rannego metalla v Krymu. *Sovetskaya arkheologiya* 3: 38-47.  
 1966 Kultury eneolita i bronzы v Krymu. *Sovetskaya arkheologiya* 2: 15-20.  
 1971 Kemi-obinskaya kultura. In: *Arkheolohiya Ukrainskoyi RSR* 1, 258-263. Kyiv.  
 1985 Kemi-obinskaya kultura. In: *Arkheologiya USSR*. 331-336. Kiev.

- 2002 *Pamiatniki kemi-obinskoy kultury. Svod arkheologicheskikh istochnikov.* Zaporozhe.
- Shchepinskiy A.A., Toshchev G.N.
- 2001 Kurgan «Kemi-Oba». *Starozhytnosti stepnogo Prichornomoria i Krymu* 9: 50-86.
- Siuchniński K.
- 1972 *Klasyfikacja czasowo-przestrzenna kultur neolitycznych na Pomorzu Zachodnim. Część II. Opracowanie analityczne.* Szczecin.
- Skiba S., Drewnik M., Kasprzak A.
- 2011 Nauka o glebie w Instytucie Geografii Uniwersytetu Jagiellońskiego. In: M. Drewnik, A. Kasprzak, W. Szymański, *Historia i kierunki rozwoju geografii gleb w Polsce*, 25-42. Kraków.
- Sobieraj J.
- 2010 *Kultura ceramiki sznurowej pomiędzy Dolną Wisłą i Niemnem* (manuscript of PhD, Institute Archaeology and Ethnology PAN). Olsztyn.
- Spitsyn A.A.
- 1903 *Mednyi vek v Verkhnem Povolzhe. Zapiski otdeleniya russkoy i slavan-skoy arkheologii Imperatorskogo Russkogo arkheologicheskogo obshchestva*, vol. V.1. Sankt-Peterburg.
- Stoliar A.D., Shchepinskiy A.A.
- 1980 Arkheologicheskiye pamiatniki Simferopolskogo vodokhranilischa (chast 1). In: *Problemy arkheologii Severnoy Osetii*, 81-96. Ordzhonikidze.
- Stupka M.V.
- 2008 Kamennye sverlennyye topory-molotki v sistemie yamno-katakombnykh drevnostey. In: *Istoriya zbroi, Almanakh* 1, 11-34. Zaporizhzhya.
- Subbotin L.V.
- 1988 Megaliticheskoe pogrebeniye u s. Tatarbunary. In: *Novye pamiatniki yamnoy kultury stepnoy zony Ukrainy*, 124-130. Kiev.
- 1995 Grobnitsy Kemi-Obinskogo tipa Severo-Zapadnogo Prichernomoria. *Rossiyskaya Arkheologiya* 3: 193-197.
- 2003 *Orudiya truda, oruzhiye i ukrasheniya plemen yamnoy kultury.* Odessa.
- Sulimirski T.
- 1959 *Polska przedhistoryczna, cz. II.I. tysiąclecie przed Chr.* Londyn.
- 1968 *Cord Ware and Globular Amphorae North-East of the Carpathians.* London.

Sveshnikov I.K. = Swiesznikow I.K.

- 1957 *Megalitychni pokhovannia na Zakhidnomu Podilli*. Lviv.
- 1967 Kultura komarowska. *Archeologia Polski* 12(1): 39-107.
- 1968 Bogatye pogrebeniya komarovskoy kultury u s. Ivania rovenskoy oblasti, *Sovetskaya arkheologiya* 2: 159-168.
- 1974 *Istoriya naselennia Peredkarpattia, Podillia I Volyni v kintsi III – na pochatku II tysiacholittya do nashoyi ery*. Kyiv.
- 1990a Pochapskaya gruppa kultury Hlopice-Vesele. In: A.P. Chernish (Ed.), *Arkheologiya Prikarpatia, Volyni i Zakarpattia (eneolit, bronz a i rannee zhelezo)*, 63-74. Kiev.
- 1990b Stzhizhovskaya kultura. In: A.P. Chernysh (Ed.), *Arkheologiya Prikarpatia, Volyni i Zakarpattia (eneolit, bronz a i rannee zhelezo)*, 68-74. Kiev.
- 1983 Kultura sharovidnykh amfor. In: *Svod arkheologicheskikh istochnikov*, 1-27. Moskva.

Symonovich E.A.

- 1966 Ingulskiy klad. *Sovetskaya arkheologiya* 1: 127-142.

Székely Z.

- 2002 A gömbamforás műveltség emléke Délkelet-Erdélyben. *Ősrégészeti Levélek* 4: 40-44.

Szeverényi V.

- 2013 The earliest copper shaft-hole axes in the Carpathian Basin: interaction, chronology and transformations of meaning. In: A. Anders, G. Kalla, V. Kiss, G. Kulcsár, G.V. Szabó (Eds), *Moments in time. Papers presented to Pál Raczky on his 60th birthday*, 661-669. Budapest.

Szmit Z.

- 1929 Badania osadnictwa epoki kamiennej na Podlasiu. *Wiadomości Archeologiczne* 10: 36-117 + tablice I-XLV.

Szmyt M.

- 1999 *Between West and East. Globular Amphorae people in Eastern Europe, Baltic-Pontic Studies* 8.
- 2000 In the far reaches of two worlds. On the study of contacts between the societies of the Globular Amphora and Yamnaya cultures. In: S. Kadrow (Ed.), *A turning of ages. Im Wandel der Zeiten. Jubilee book dedicated to Professor Jan Machnik on his 70th anniversary*, 443-466. Kraków.
- 2001 The Absolute (Radiocarbon) Chronology of the Central and Eastern Groups of the Globular Amphora Culture. In: J. Czebreszuk, J. Müller (Eds), *Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr./ The Absolute Chronology of Central Europe 3000-2000 BC. Studien zur Archäologie*



- in Ostmitteleuropa / Studia nad Pradziejami Europy Środkowej* 1, 25-80. Poznań – Bamberg - Rahden/Westf.
- 2002 Ze studiów nad kontaktami społeczeństw środkowoeuropejskich i stepowych. Relacje ludności kultury amfor kulistych i kultury jamowej. In: *Drevneyshe obschnosti zemledeltsev i skotovodov Severnogo Prichernomoria (IV tys. do n.e. – IV v. n.e.)*, 111-114. Tiraspol.
- 2009 Eastern Destinations of Central European Cultural Patterns. The case of Globular Amphora Culture (end of the 4th – middle of the 3rd millennium BC). In: A. Koško, V.I. Klochko (Eds), *Routes between the seas: Baltic-Bug-Boh-Pont from the 3rd to the middle of the 1st millennium BC. Baltic-Pontic Studies* 14: 231-250.
- 2011 Kurhany w kulturze amfor kulistych. Dwa przykłady z Kujaw. In: H. Kowalewska-Marszałek, P. Włodarczak (Eds), *Kurhany i obrządek pogrzebowy w IV-II tysiącleciu p.n.e.*, 109-122. Kraków, Warszawa.
- 2013a The circulation of People and Ideas in the Baltic and Pontic Areas during 3rd millennium BC. In: S. Kadrow, P. Włodarczak (Eds), *Environment and Subsistence – forty years after Janusz Kruk’s “Settlement studies”, Studien zur Archäologie in Ostmitteleuropa* 11, 441-458. Rzeszów, Bonn.
- 2013b View from the Northwest: Interaction Network in the Dnieper– Carpathian Area and the People of the Globular Amphora Culture in the Third Millennium BC. In: V. Heyd, G. Kulcsár, V. Szeverényi (Eds), *Transitions to the Bronze Age. Interregional Interaction and Socio-Cultural Change in the Third Millennium BC Carpathian Basin and Neighbouring Regions*, 93-112. Budapest.
- Szmyt M., Chernyakov I.T.
- 1999 Radiocarbon Chronology of “Akkiembetskiy Kurgan”. A Preliminary Report. In: A. Koško (Ed.), *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850 BC. Baltic-Pontic Studies* 7: 196-202.
- Ścibior J.
- 1991 Kultura amfor kulistych w środkowowschodniej Polsce. Zarys problematyki. In: J. Gurba (Ed.), *Schyłek neolitu i wczesna epoka brązu w Polsce środkowowschodniej, Lubelskie Materiały Archeologiczne* 6, 47-65.
- 1993 Badania na wzgórzu Salve Regina w 1988 roku. In: S. Tabaczyński (Ed.), *Sandomierz: badania 1969–1973*, vol. 1, 318-322. Warszawa.

Ślusarska K.

- 2006 *Funeral rites of the Catacomb community: 2800-1900 BC. Ritual, thanatology and geographical origins, Baltic-Pontic Studies* 13.

Ślusarski Z., Ślusarska-Polańska M.

- 1989 Badania stanowisk kultury strzyżowskiej w Raciborowicach Kolonii, woj. Chełm w latach 1956, 1958 i 1959. *Sprawozdania Archeologiczne* 40: 167-196.

Šebela L.

- 2006 Vliv Karpatské Kotliny na pohřební ritus populací moravského pozdního eneolitu. *Študijné Zvesti Archeologického Ústavu SAV*: 101-109.

Taras H.

- 2006 The Directions of the Lublin region connections in the Older Bronze Periods. In: J. Baron, I. Lasak (Eds), *Long Trade in the Bronze and Early Iron Age. Conference Materials Wrocław, 19-20th April 2005, Studia Archeologiczne XL*, 251-269. Wrocław.
- 2007a Na przedpolu świata pontyjskiego – osadnictwo kultury strzyżowskiej (2000/1950-1600 przed Chr.). In: E. Banasiewicz-Szykuła (Ed.), *Pra-dzieje południowo-wschodniej Lubelszczyzny*, 85-94. Lublin.
- 2007b Oddziaływania wschodnioeuropejskie w starszych fazach epoki brązu na społeczności w dorzeczu górnej i środkowej Wisły (ze szczególnym uwzględnieniem Lubelszczyzny). In: L. Bakalarska (Ed.), *Wspólnota dziedzictwa archeologicznego ziem Ukrainy i Polski. Materiały z konferencji zorganizowanej przez Ośrodek Ochrony Dziedzictwa Archeologicznego, Łańcut* (26-28 X 2005 r.), 179-195. Warszawa.

Tebelškis P., Jankauskas R.

- 2006 The Late Neolithic grave at Gyvakarai in Lithuania in the context of current archaeological and anthropological knowledge. *Archaeologia Baltica* 6: 8-20.

Telegin D.Y., Pustovalov S.Z., Kovalyukh N.N.

- 2003 Relative and Absolute Chronology of Yamnaya and Catacomb Monuments the issue of co-existence. In: A. Koško (Ed.), *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 4000-1000 BC, Baltic-Pontic Studies* 12: 132-184.

Teslenko D.L.

- 2002 K вопросу o territorii raspostraneniya kamennykh grobnits eneolita-ranney bronzy stepnoy Ukrainy. In: E. Yarovoy (Ed.) *Drevneyshye obschnosti zemledeltsev i skotovodov Severnogo Prichernomoria (V tys. do n.e. – V vek n.e.). Doklady nauchnoy konferentsii*, 107-111. Tiraspol.

- 2007 Ob evolutsii megaliticheskikh sooruzheniy v Severnom Prichernomorie i Prizazovie (eneolit – ranniy bronzovy vek). In: *Materialy ta doslidzhennia z arkeolohii Skhidnoi Ukrainy vid neolitu do kimmeriytsev* 7: 76-85. Luhansk.

Teslenko D.L., Grebennikov Y.S.

- 2002 Pogrebeniya v kammenykh grobnitsakh iz kurgana u s. Vesnianoe na Nikolaevschine. In: *Problemy arkeolohii Podniprovia*, 82-90. Dnipropetrovsk.

Tkach V.

- 2012 Poselennia stzhyzhovskoyi kultury Ravantsi – Hnidavska Hirka (za materialamy z rozkopu 12). *Volyno-Podilski arkeolohichni studii* 3: 109-117.

Toshev G.N.

- 1991 Zapadniy areal pamiatnikov katakombnoy kultury. In: *Katakombnye kultury Severnogo Prichernomoria*, 85-100. Kiev.
- 1998 Pogrebeniya s kostianymi priazhkami epokhi sredney bronzы v Krymu. In: G.N. Toshev (Ed.), *Problemy izucheniya katakombnoy kulturno-istoricheskoy obschnosti (KKIO) i kulturno-istoricheskoy obschnosti mnogo-valikovoy keramiki (KIOMK)*, 117-125. Zaporozhe.
- 2002 Pogrebalnye komplekсы s dereviannymi konstruktsiyami epokhi ranney bronzы Kryma. In: *Severnoe Prichernomorie ot eneolita k antichnosti*, 99-111. Tiraspol.
- 2007 *Krym v epokhu bronzы*. Zaporozhe.

Trifonov V.A.

- 2013 What distinguishes Caucasian megaliths from European ones? In: S. Bergerbrant, S. Sabatini (Eds), *Counterpoint: Essays in Archaeology and heritage Studies in Honour of Professor Kristian Kristiansen. BAR International Series* 2508, 321-328. Oxford.

Tunia K.

- 1979 Cmentarzysko kultury ceramiki sznurowej w Koniuszy, woj. Kraków. *Sprawozdania Archeologiczne* 31: 47-75.

Tunia K., Włodarczak P.

- 2011 Barrow of the Funnel Beaker Culture in Małżyce, Kazimierza Wielka district/Kurhan kultury pucharów lejkowatych w Małżycach, pow. Kazimierza Wielka. *Sprawozdania Archeologiczne* 63: 203-219.

Tupchienko M.P.

- 1993 Robota arkeolohichnoyi ekspedytsii Kirovohrads'koho kraeznavchoho muzeyu. In: *Arkheolohichni doslidzhennia na Ukraini 1992 roku*, 135-138. Kyiv.

Valde-Nowak P.

- 1988 *Etapy zasiedlenia Karpat polskich w neolicie i na początku epoki brązu*. Wrocław-Warszawa-Kraków-Gdańsk-Łódź.

Videiko M.Yu.

- 1999 Radiocarbon Dating Chronology of the Late Tripolye Culture. In: A. Kośko (Ed.), *The Foundations of Radiocarbon Chronology of Cultures Between the Vistula and Dnieper in 3150-1850 BC*, *Baltic-Pontic Studies* 7: 34-71.

Vulpe A.

- 1970 *Die Äxte und Beile in Rumänien. Prähistorische Bronzefunde*. Abteilung IX. München.

Vynohradova N.M.

- 1973 Trypilske poselennia Zalishchyki na Dnistri. *Arkheolohiya* 8: 68-70.

Wierzbicki J.

- 2013 *Wielka kolonizacja. Społeczności kultury pucharów lejkowatych w dorzeczu środkowej Warty*. Poznań.

Wilk S.

- 2013 A Złota Culture Cemetery at Książnice site 2, Świętokrzyskie Province. *Sprawozdania Archeologiczne* 65: 311-337.

Wilk S., Haduch E., Szczepanek A., Koszowska E., Trąbska J.

- 2011 Groby z nadpalonymi szkieletami z cmentarzyska kultury złockiej w Książnicach, woj. świętokrzyskie. In: A. Jaszewska and A. Michalak (Eds), *Ogień – żywioł ujarzmiony i nieujarzmiony, VI Polsko-Niemieckie Spotkania Archeologiczne Gabcz, 5-6 czerwca 2008*, 23-54. Zielona Góra

Wiślański T.

- 1966 *Kultura amfor kulistych w Polsce północno-zachodniej*. Wrocław-Warszawa-Kraków.
- 1978 Kurhan z wczesnej fazy kultury ceramiki sznurowej z Modliborzyc na Kujawach (woj. bydgoskie), *Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi* 25: 405-414.

Witkowska B.

- 2013 *Kultura złocka. Taksonomia, osadnictwo i chronologia, manuscript of PhD dissertation, Institute of Archeology of the Jagiellonian University in Kraków*. Kraków.



Włodarczak P.

- 2001 The absolute chronology of the Corded Ware culture in the south-eastern Poland. In: J. Czebreszuk, J. Müller (Eds), *The absolute chronology in central Europe during the 3rd millenium BC*, Poznań – Bamberg – Rahden/Westfalen, 103-129.
- 2004 Cemetery of the Corded Ware culture in Zielona, Koniusza commune, Małopolska. *Sprawozdania Archeologiczne* 56: 307-360.
- 2006 *Kultura ceramiki sznurowej na Wyżynie Małopolskiej*. Kraków
- 2008a Kultura złocka i problem genezy kultury ceramiki sznurowej w Małopolsce. In: J. Bednarczyk, J. Czebreszuk, P. Makarowicz, M. Szmyt (Eds), *Na pograniczu światów. Studia z pradziejów międzymorza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Kośko w 60. rocznicę urodzin*, 555-576. Poznań.
- 2008b Unique burial of the Bell Beaker culture from the cemetery in Sambrzec (southern Poland). In: M. Baioni, V. Leonini, D.L. Vetro, F. Martini, R. Poggiani Keller, L. Sarti (Eds), *Bell Beaker in everyday life, Proceedings of the 10th Meeting "Archéologie et Gobelets" (Florence – Siena – Villanuova sul Clisi, May 12-15, 2006)*, *Millenni Studi di Archeologia Preistorica* 6, 393-396. Firenze.
- 2008c Absolute chronology of the barrow in Kolosy. *Sprawozdania Archeologiczne* 60: 151-168.
- 2009 Radiocarbon and dendrochronological dates of the Corded Ware culture. *Radiocarbon* 51/2: 737-749.
- 2010 Dunajski szlak kultury grobów jamowych a problem genezy kultury ceramiki sznurowej. In: S. Czopek, S. Kadrow (Eds), *Mente et rutro. Studia archaeologica Johanni Machnik viro doctissimo octogesimo vitae anno ab amicis, collegis et discipulis oblata*, 299-325. Rzeszów.
- 2011 Kurhany i kultura ceramiki sznurowej nad dolną Nidą. In: H. Kowalewska-Marszałek, P. Włodarczak (Eds), *Kurhany i obrządek pogrzebowy w IV-II tysiącleciu p.n.e.*, 211-229. Kraków, Warszawa.
- 2013a Projekt badań chronologii absolutnej eneolitu i początków epoki brązu w Małopolsce. In: I. Cheben, M. Soják (Eds), *Otázky neolitu eneolitu našich krajín* 2010, 373–388. Nitra.
- 2013b Les peuples des kurgans sur les plateaux de la Petite Pologne. Reflets d'une communauté du néolithique final à travers ses pratiques funéraires. In: B. Sz. Szmoniewski (Ed.), *Archéologie*, 61-78. Varsovie-Paris.

- 2013c The lost settlements – one from the visible problems in the research on the Final Neolithic in southern Poland. In: S. Kadrow, P. Włodarczak (Eds), *Environment and subsistence – forty years after Janusz Kruk's „Settlement studies...”*, *Studien zur Archäologie in Ostmitteleuropa/Studia nad Pradziejami Europy Środkowej* 11, 173-184. Rzeszów-Bonn.
- 2014 Sekwencja czynności obrzędowych: problem korespondencji tradycji funeralnych kultury jamowej i kultury ceramiki sznurowej na Wyżynie Podolskiej. In: A. Koško, M. Potupczyk, S. Razumow (Eds), *Naddniestrzańskie kompleksy cmentarzysk kurhanowych społeczności z III i z pierwszej połowy II tysiąclecia przed Chr. w okolicach Jampola, obwód winnicki. Z badań nad północno-zachodnią rubieżą osadnictwa społeczności kręgu kultur „wczesnobrązowych” strefy pontyjskiej*, *Archaeologia Bimaris. Monografie* 6, 313-340. Poznań.

Włodarczak P., Przybyła M.M.

- 2013 Groby z Koszyc na tle innych późno- i środkowoneolitycznych znalezisk środkowoeuropejskich. In: M.M. Przybyła, A. Szczepanek, P. Włodarczak (Eds), *Koszycy, stanowisko 3. Przemoc i rytuał u schyłku neolitu*, 209-255. Kraków-Pękowice.

Wojciechowski W.

- 1976 Sztylety krzemienne typu skandynawskiego w Polsce zachodniej (ze studiów nad kontaktami Polski zachodniej z południową Skandynawią w późnym neolicie i w początkach epoki brązu), *Acta Universitatis Wratislaviensis* 253. *Studia Archeologiczne* 7: 37-94.
- 1988 Próba lokalizacji ośrodków produkcyjnych toporów ślężańskich w świetle badań petroarcheologicznych. *Przegląd Archeologiczny* 35: 101-138.

Zakościelna A.

- 1981 Materiały krzemienne tzw. kultur południowych z Lubelszczyzny, *Annales Universitatis Mariae Curie-Skłodowska, sec. F, vol. 35/36* (1980-1981): 3-23.
- 1996 *Krzemieniarstwo kultury wołyńsko-lubelskiej ceramiki malowanej*. Lublin.
- 2008 Wiórowce-sztylety jako atrybuty pozycji społecznej mężczyzn kultury lubelsko-wołyńskiej. In: J. Bednarczyk, J. Czebreszuk, P. Makarowicz, M. Szmyt (Eds), *Na pograniczu światów. Studia z pradziejów międzymorza bałtycko-pontyjskiego ofiarowane Profesorowi Aleksandrowi Koško w 60. rocznicę urodzin*, 577-591. Poznań.
- 2010 *Studium obrządku pogrzebowego kultury lubelsko-wołyńskiej*. Lublin.

Zakościelna A., Gurba J.

- 1993 Badania wykopaliskowe w Łopienniku Dolnym na stan. 3, woj. chełmskie. In: J. Gurba (Ed.), *Sprawozdania z badań terenowych Katedry Archeologii UMCS w 1992 roku*, 3-8. Lublin.

Zalcman E.

- 2004 *Poseleniya kultury shnurovoy keramiki na territorii Kaliningradskoy oblasti*. Kaliningrad.
- 2010 Poseleniya kultury shnurovoy keramiki na territorii Yugo-Vostochnoy Pribaltiki. *Materialy okhrannikh arkheologicheskikh issledovaniy* 14. Moskva.

Zlatohorskiy O., Bardetskiy A.

- 2010 Doslidzhennia bahatosharovoho poselennia Hnidavska Hirka bilia Lutska u 2009 rotsi. *Materiaty i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego* 31: 101-114.

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This publication constitutes the fruits of National Science Centre research projects (grant no 2011/01/M/HS3/02142 – 6 articles) and the National Programme for the Development of the Humanities (grant no 0108/NPH3/H12/82/2014 – 3 articles). We would like to acknowledge and at the same time express our sincere gratitude for the generosity shown by the following at the Adam Mickiewicz University in making this publication possible: the Dean of the Department of History, Institute of Pre-history and the Eastern Institute.