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

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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 archaelogical 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).

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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)[1], 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)[2]. 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

[1] 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.

[2] 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.

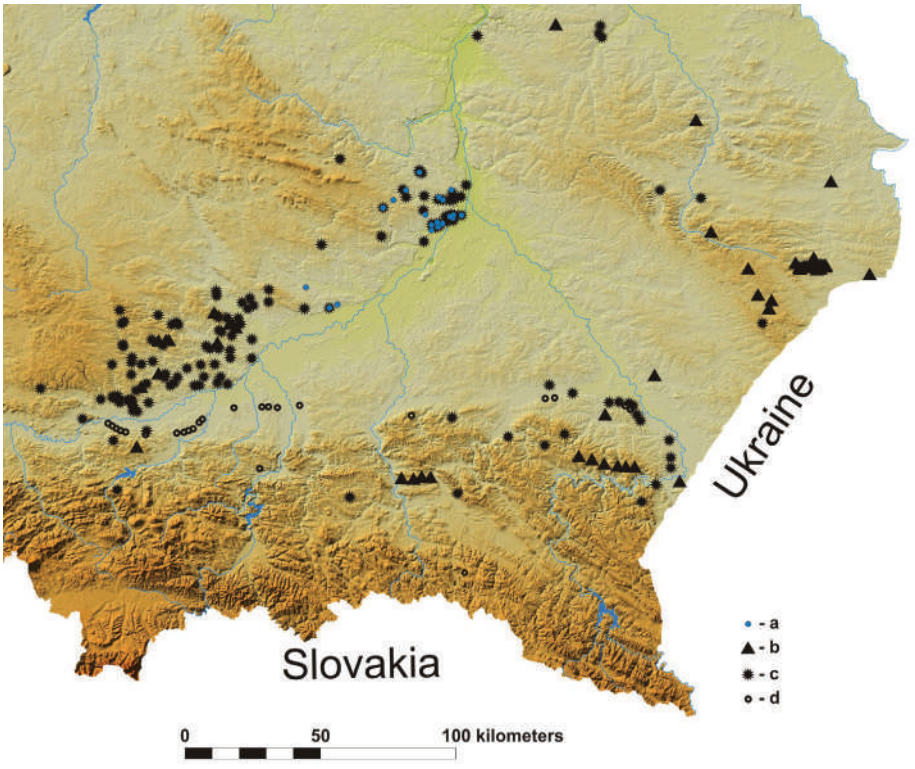

Fig. 1 Grave finds and Final Neolithic settlements in Małopolska: a – Złota culture cemeteries and single graves, b – Corded Ware culture barrows, c – Corded Ware culture cemeteries and single graves, d – Corded Ware culture settlement sites

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.[3] 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

[3] 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).

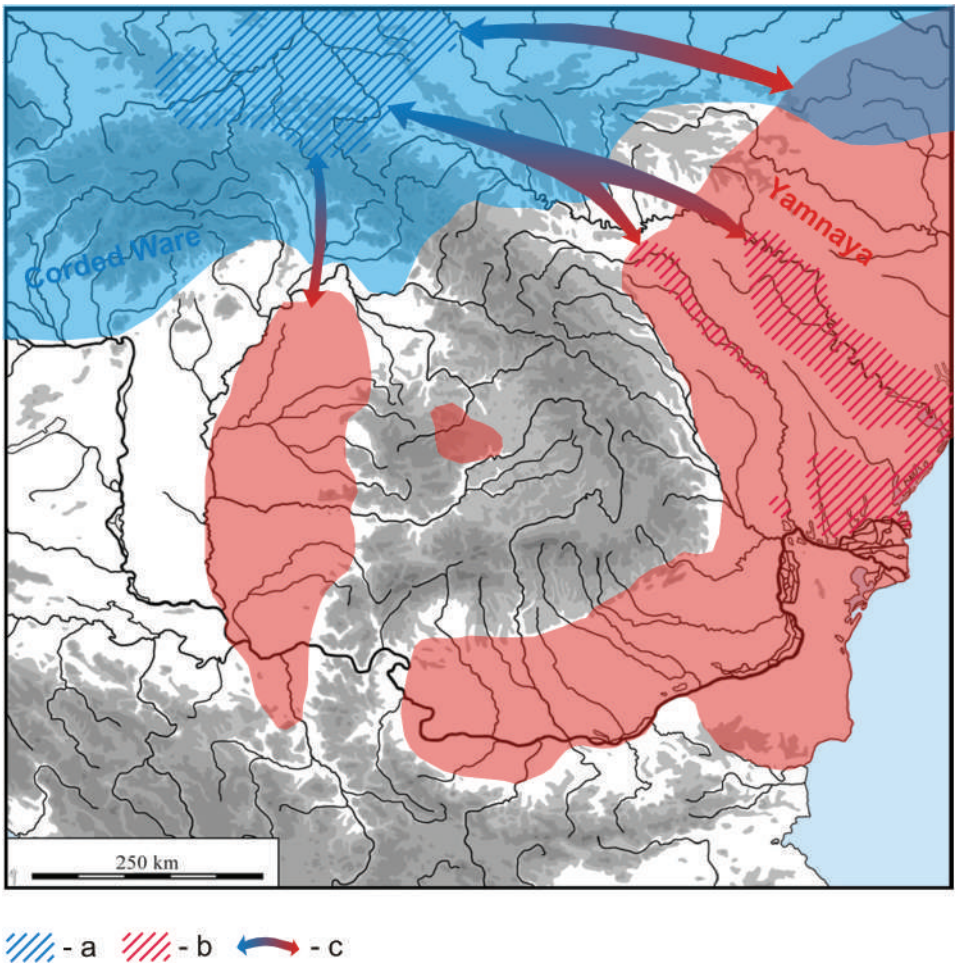

Fig. 2 Location of Małopolska Corded Ware culture sites in the context of Yamnaya culture and Catacumb culture finds: a – Małopolska Corded Ware culture, b – clusters of west-Pontic Catacumb culture graves, c – major communication routes between Yamnaya culture-Catacumb culture and Małopolska Corded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

come also from the western portion of the CC complex range [Toschev 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 – Kośko, Kločko 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

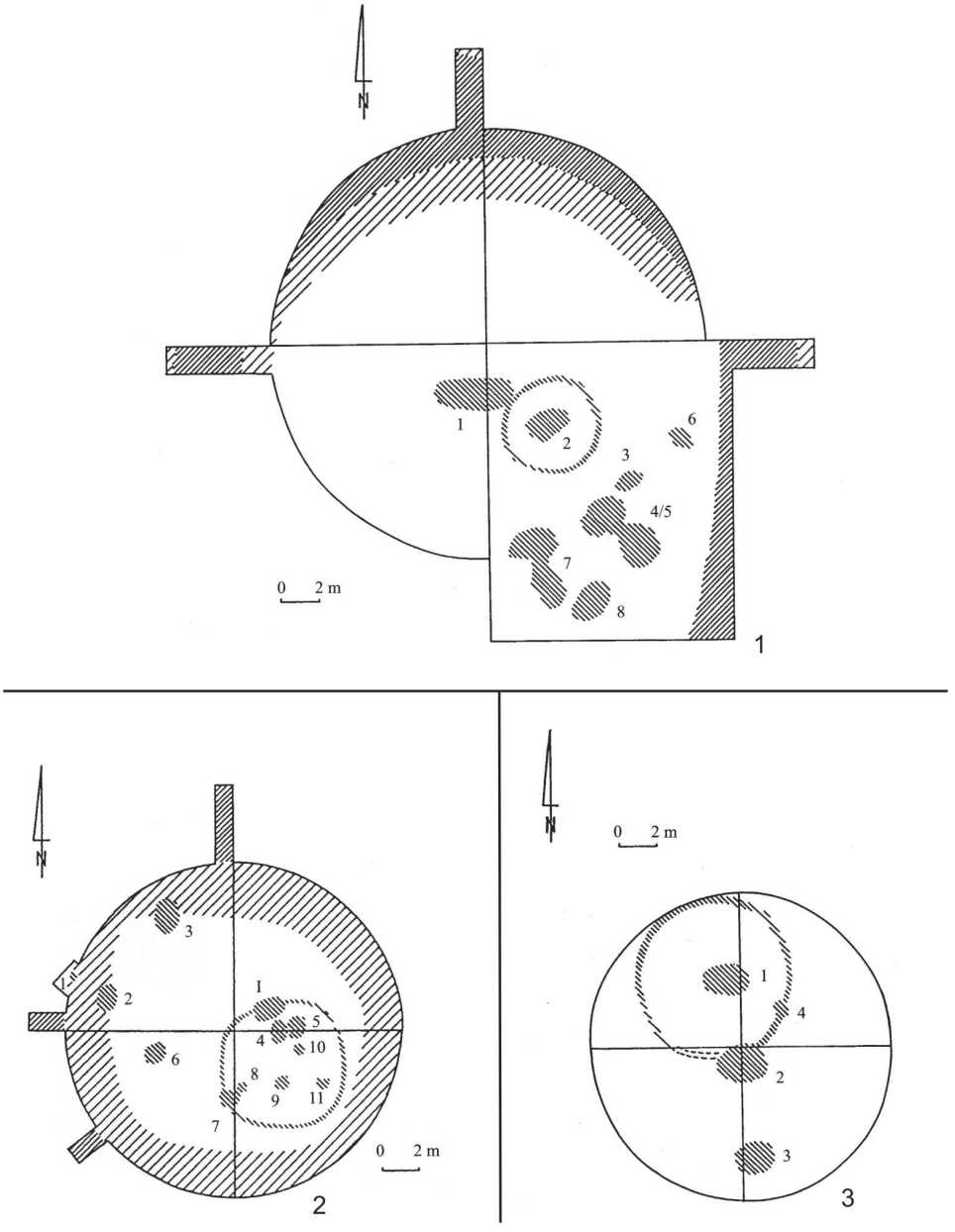

Fig. 3. Examples of multi-phase barrows from Grzęda Sokalska [Machnik *et al.* 2009]: 1 – Wierszczyca, site 31, barrows 1, 2 – Wierszczyca, site 30, barrow 1, 3 – Wierszczyca, site 1, barrow 1

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.[4] 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

[4] 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.

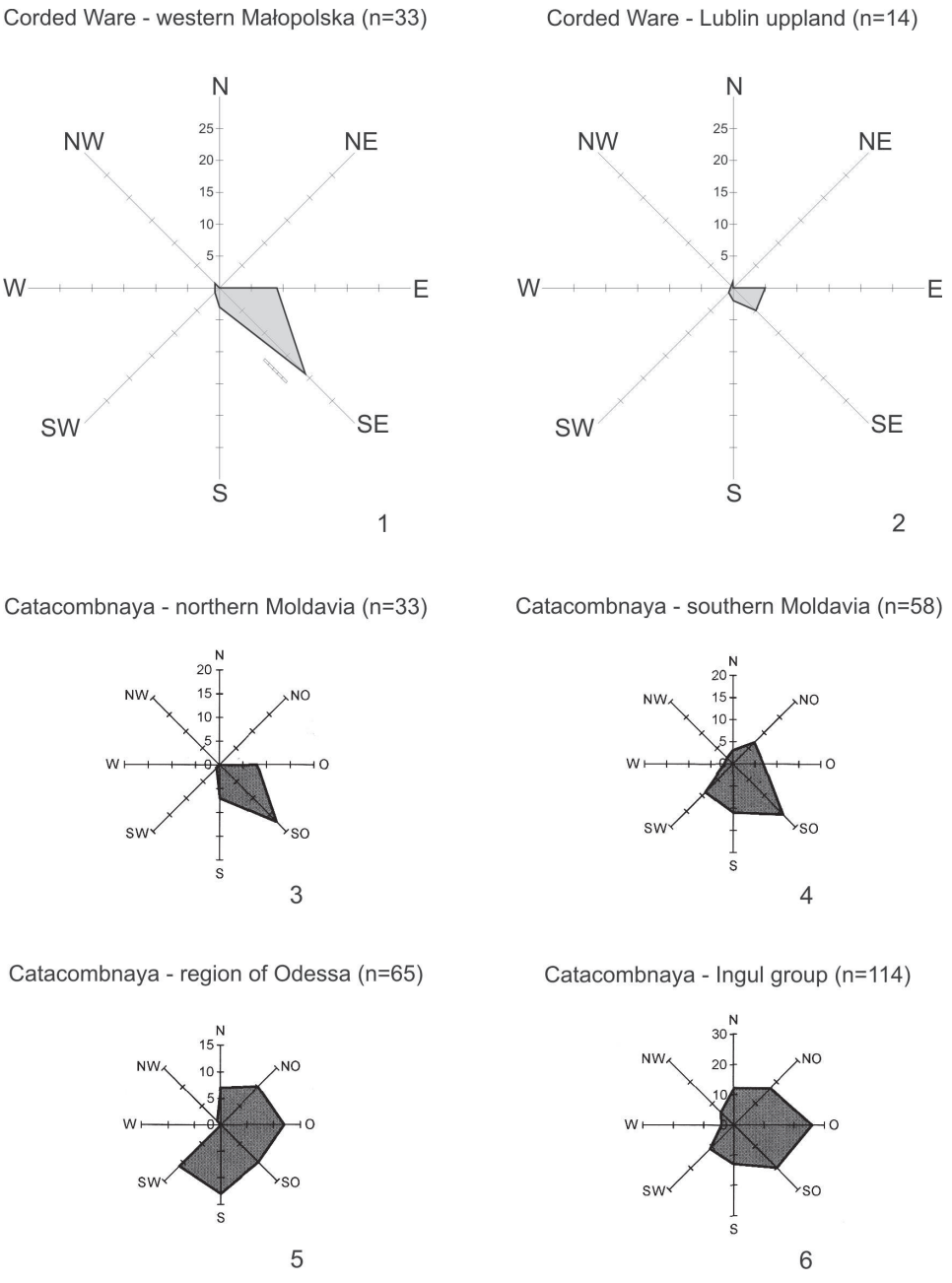

Fig. 4. Position of secondary burials relative to barrow centre in western Małopolska (1), on Lublin Upland (2) and in western stretches of the Catacomb culture. [3-6; *after* Kaiser 2003]

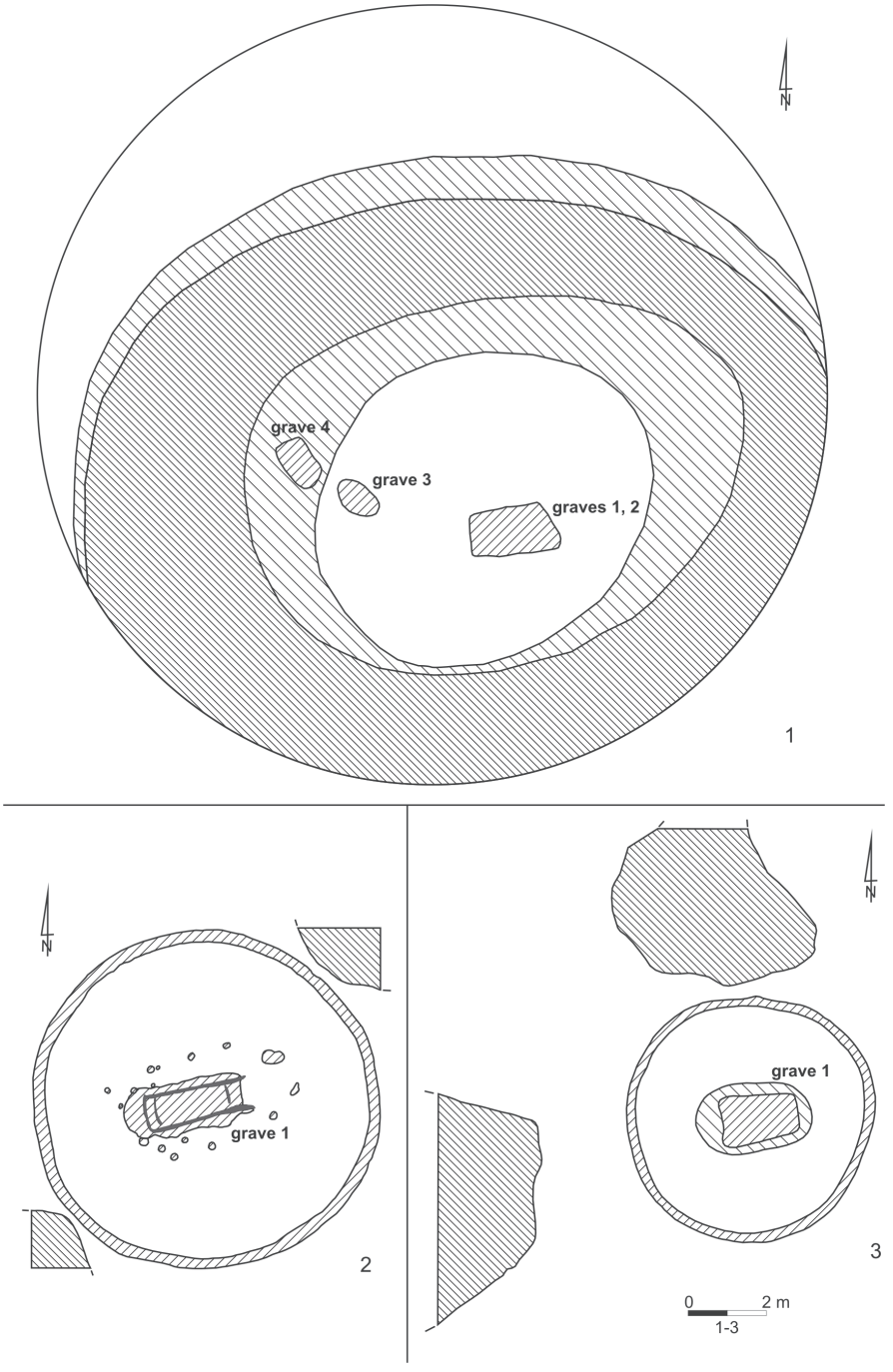

Fig. 5. Examples of Małopolska barrow constructions: 1 – Nedeżów, site 22, barrow 2, 2 – Niepla, 3 – Krajowice. [*after* Machnik *et al.* 2009, Gancarski, Valde-Nowak 2011]

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

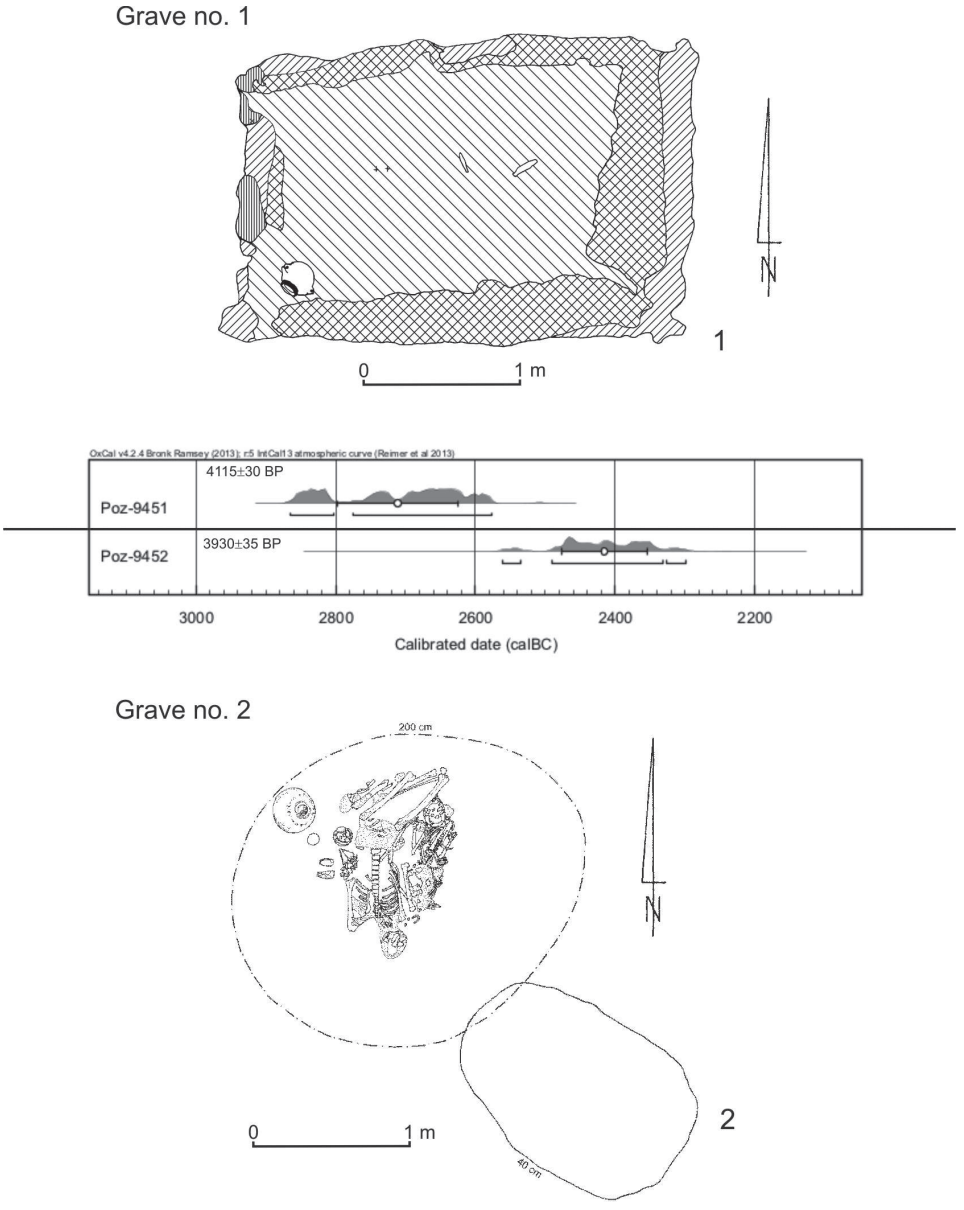

Fig. 6. Chronological sequence of Corded Ware culture graves from barrow 1 in Gabułtów [Górski, Jarosz 2006]: 1 – grave 1 (central, pit), 2 – grave 2 (secondary, catacomb)

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. Gabułtów, 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 Gabułtów [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

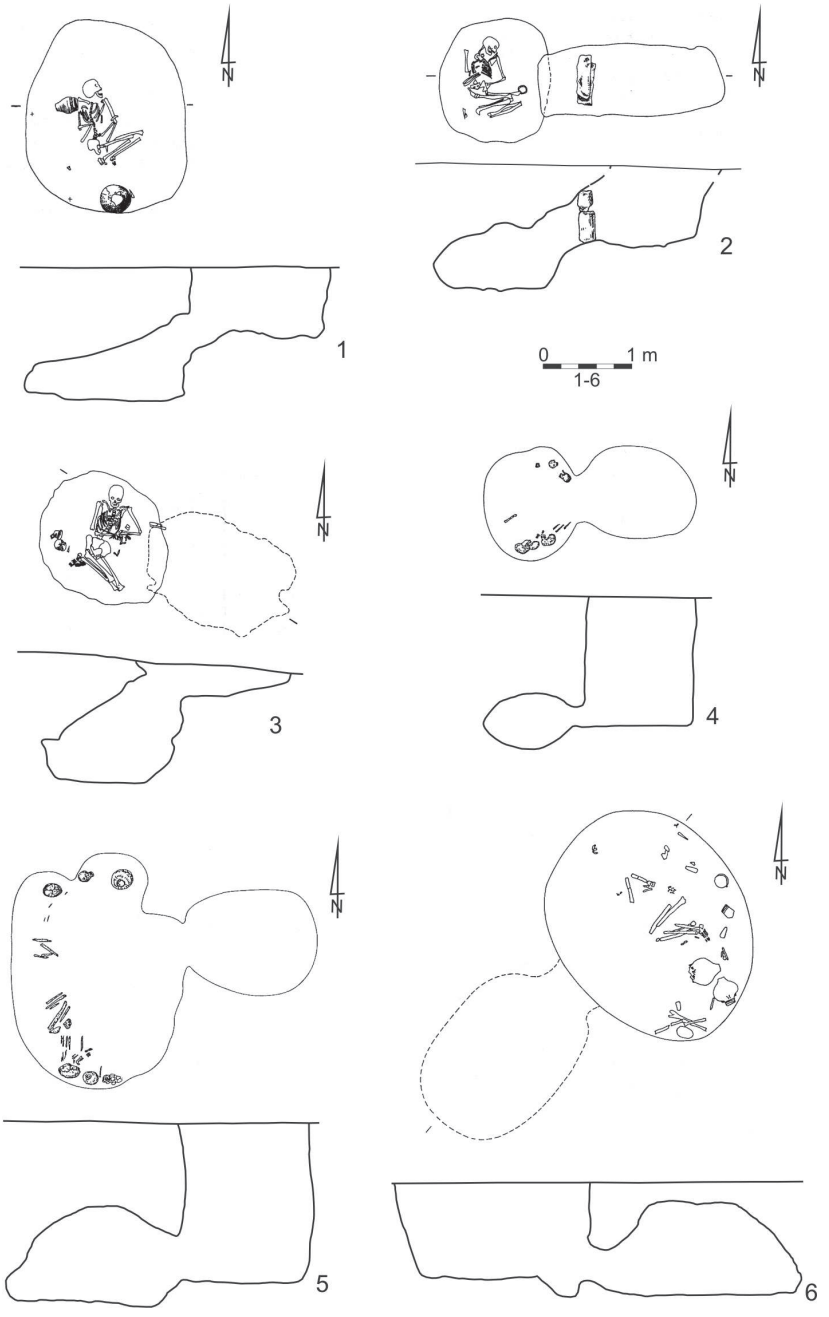

Fig. 7. Corded Ware culture catacomb graves from western Małopolska (1-3) and the Lublin Upland (4-6): 1-3 – Żerniki Górne (1 – grave 15, 2 – grave 93, 3 – grave 97); 4, 5 – Łubcze, site 25, barrow 2, graves 3 (4) and 4 (5); 6 – Hubinek, site 4, barrow 1, feature 2. [*after* Kempisty 1978, Machnik *et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

[6] 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, Łubcze, 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.

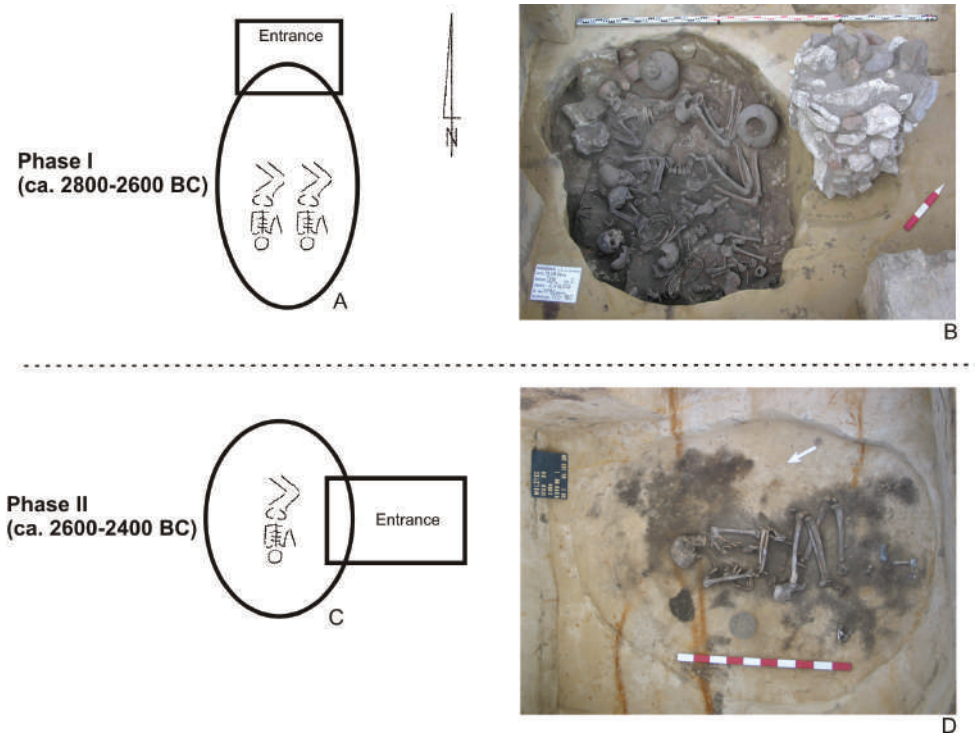

Fig. 8. Two generalized conceptions of catacomb graves in Małopolska: older Złota Culture (A, B) and younger Corded Ware culture (C, D). B – Książnice, grave 2/06 [Wilk 2013]. D – Malżyce, barrow 1, grave 7. Photo: S. Wilk, P. Włodarczak

time.[7] 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

[7] 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].

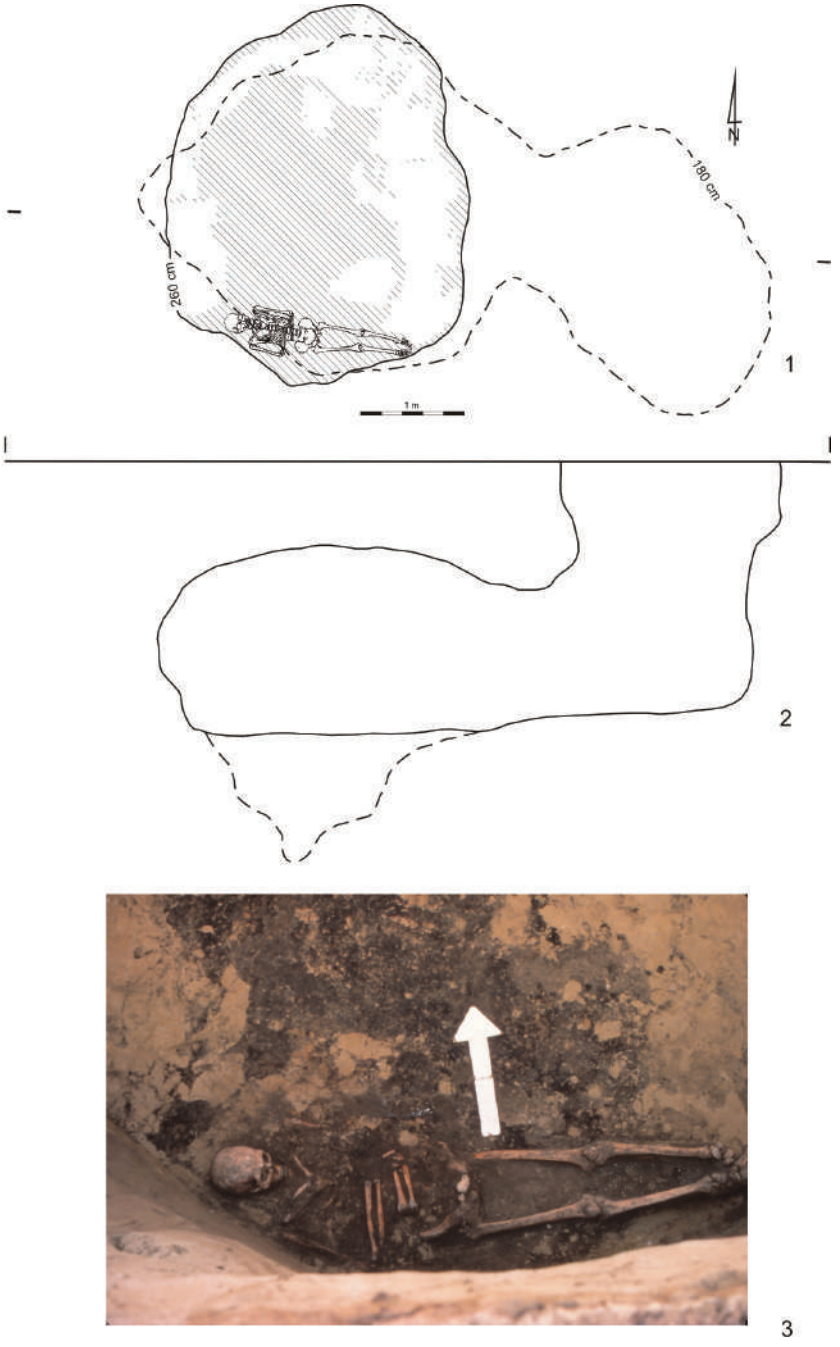

Fig. 9. Corded Ware culture barrow catacomb grave: feature 1 from barrow 2 in Pałecznica [Liguzińska-Kruk 1989]; outline modified according to field documentation kept in the archives, Centre for the Archaeology of Mountains and Uplands IAE PAN, Igołomia

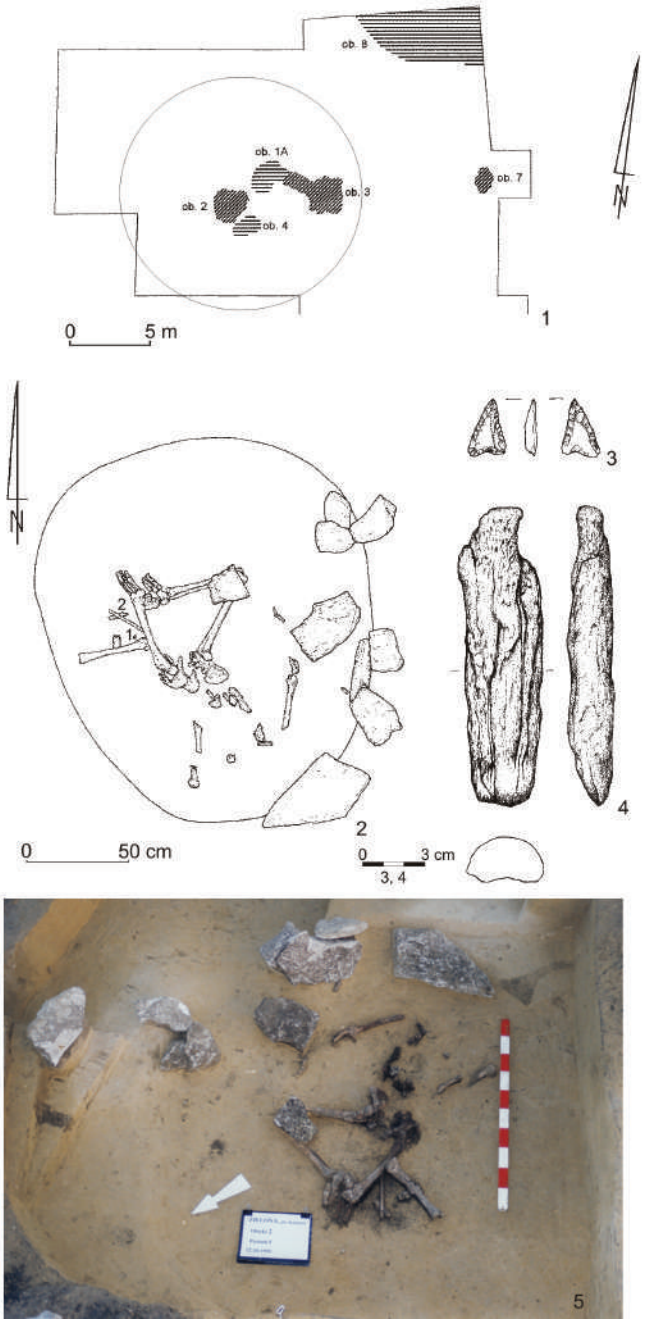

Fig. 10. Grave 2, site 3, Zielona [Włodarczak 2004] – probably a central barrow grave. 1 – fragment of the investigated part of the site with the approximate barrow range; 2, 5 – burial level; 3, 4 – artefacts found at the grave bottom

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 Miernów and Pałecznica, 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.[8] Thus, in the first half of the 3rd millennium BC, most likely ca. 2800-2600 BC, in western Małopolska, two parallel trends in the

[8] 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.

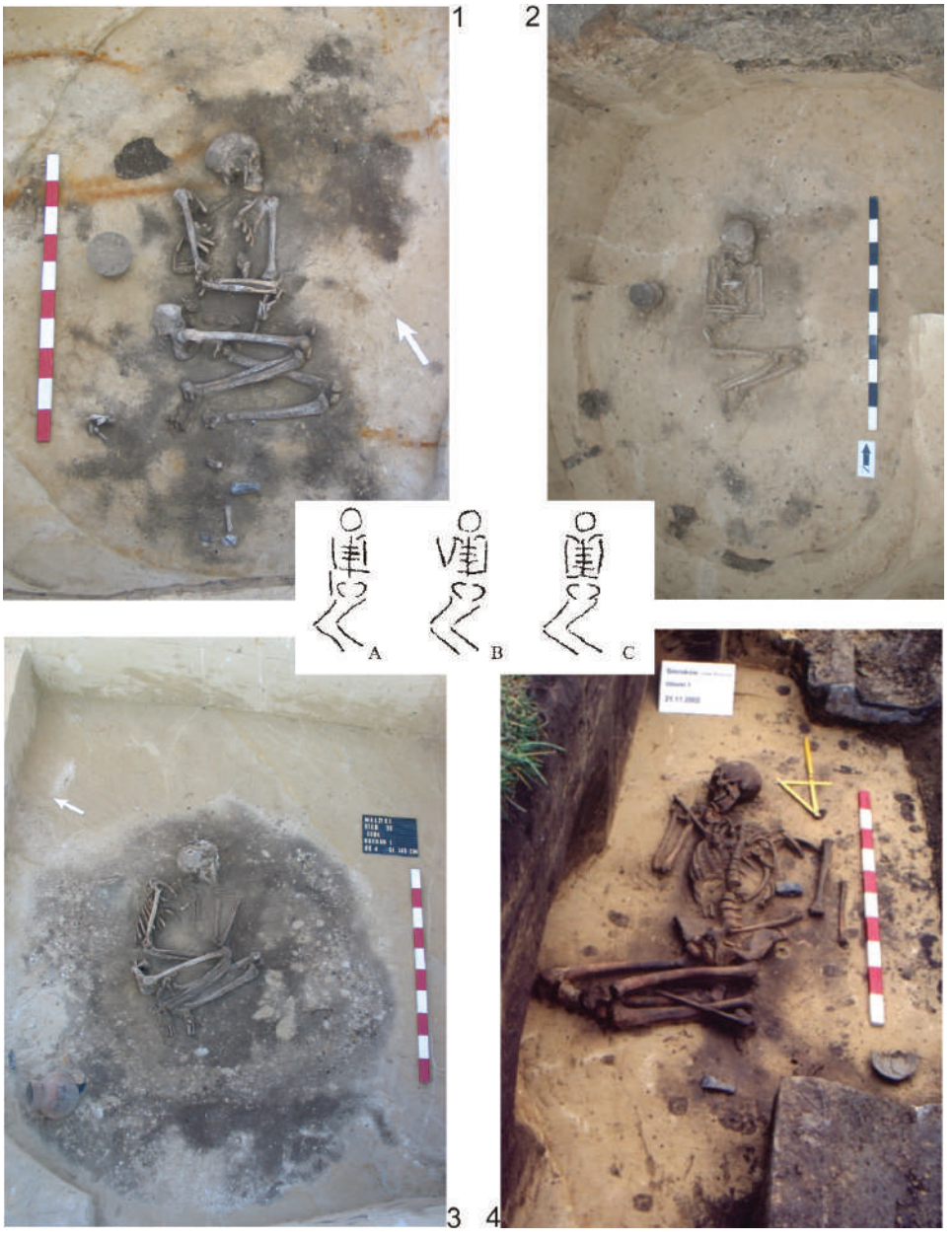

Fig. 11. Characteristic body arrangements in Corded Ware culture catacomb graves from Małopolska: 1 – Malżyce, barrow 1, grave 7; 2 – Malżyce, barrow 2, grave 12; 3 – Malżyce, barrow 1, grave 4; 4 – Smroków, grave 1. Photo: P. Włodarczak

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 [Kośko 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[9] 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, Pałecznica [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, Kośko 2011: 279, 280]. Into the Pałecznica barrow, there were incavated CWC graves that

[9] 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.[10] 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 Pałecznica 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.[11] 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

[10] 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.)

[11] 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.

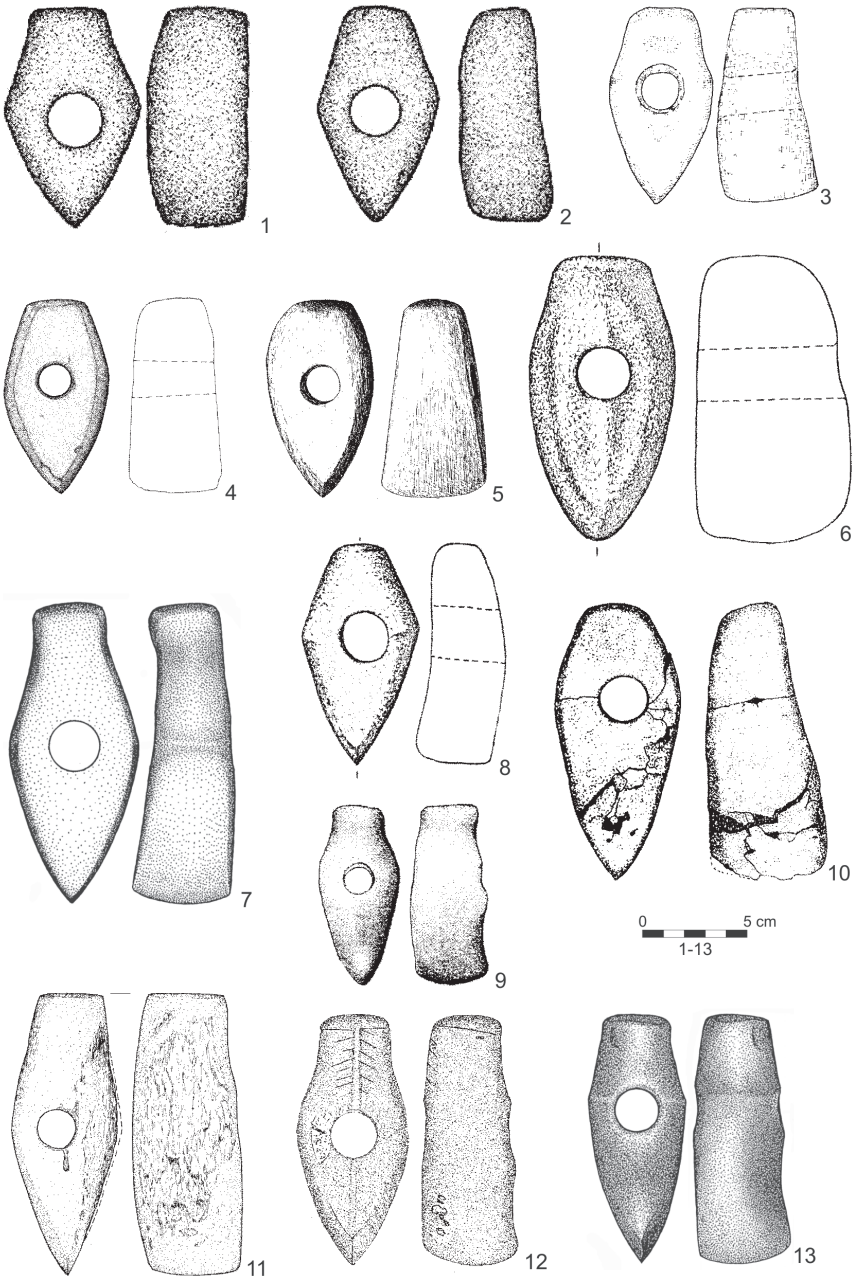

Fig. 13. Selection of Małopolska Corded Ware culture stone battle-axes: 1 – Tarnawce; 2 – Sierakośce; 3 – Wójeczka, grave 2; 4 – Smroków, grave 1; 5 – Miernów, barrow 2, grave 2; 6 – Wygnańce; 7 – Wierszczyca, site 1, barrow 1, grave 2; 8 – Chutcze; 9 – Kichary Nowe, grave 26; 10 – Malice Kościelne, 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][12], 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 (serpentinite 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

[12] 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

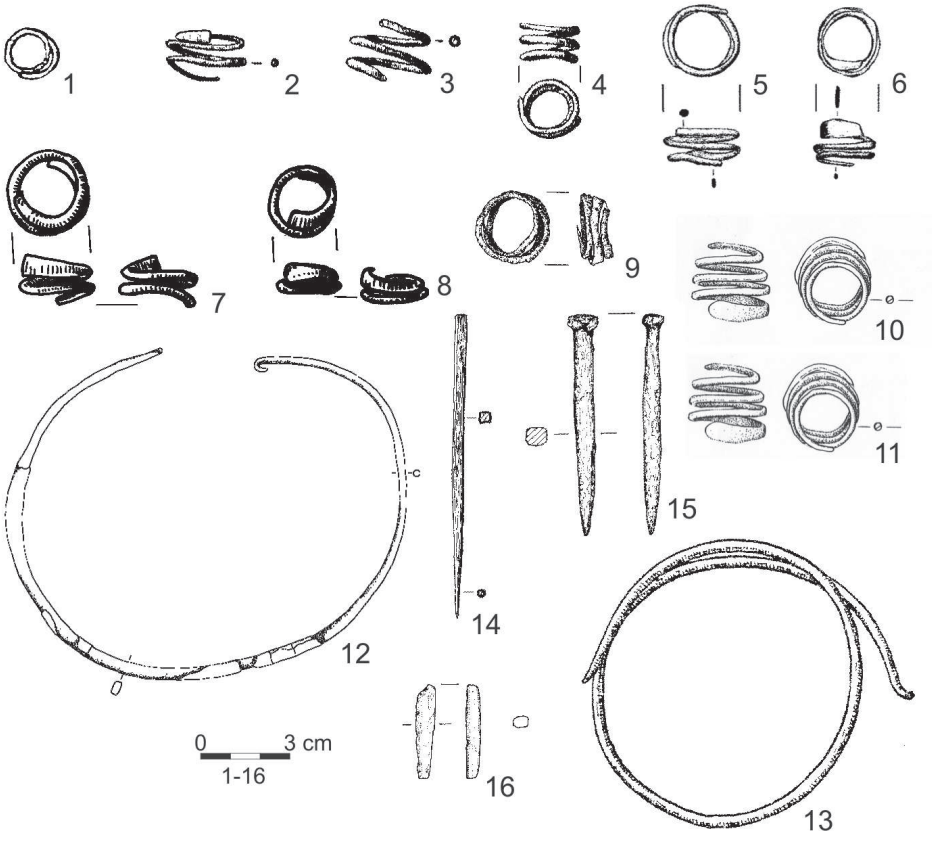

Fig. 14. Principal kinds of metal artefacts from Małopolska Corded Ware culture graves. 1-11 – earrings; 12, 13 – necklaces; 14-16 – punches. 1-9, 12-16 – copper; 10, 11 – gold. 1 – Bosutów; 2, 3 – Mierzanowice, grave 83; 4 – Mierzanowice, grave 81; 5, 6 – Lublin-Sławinek, grave 3; 7, 8 – Żerniki Górne, 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 – Malżyce, 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[13] [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

[13] 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

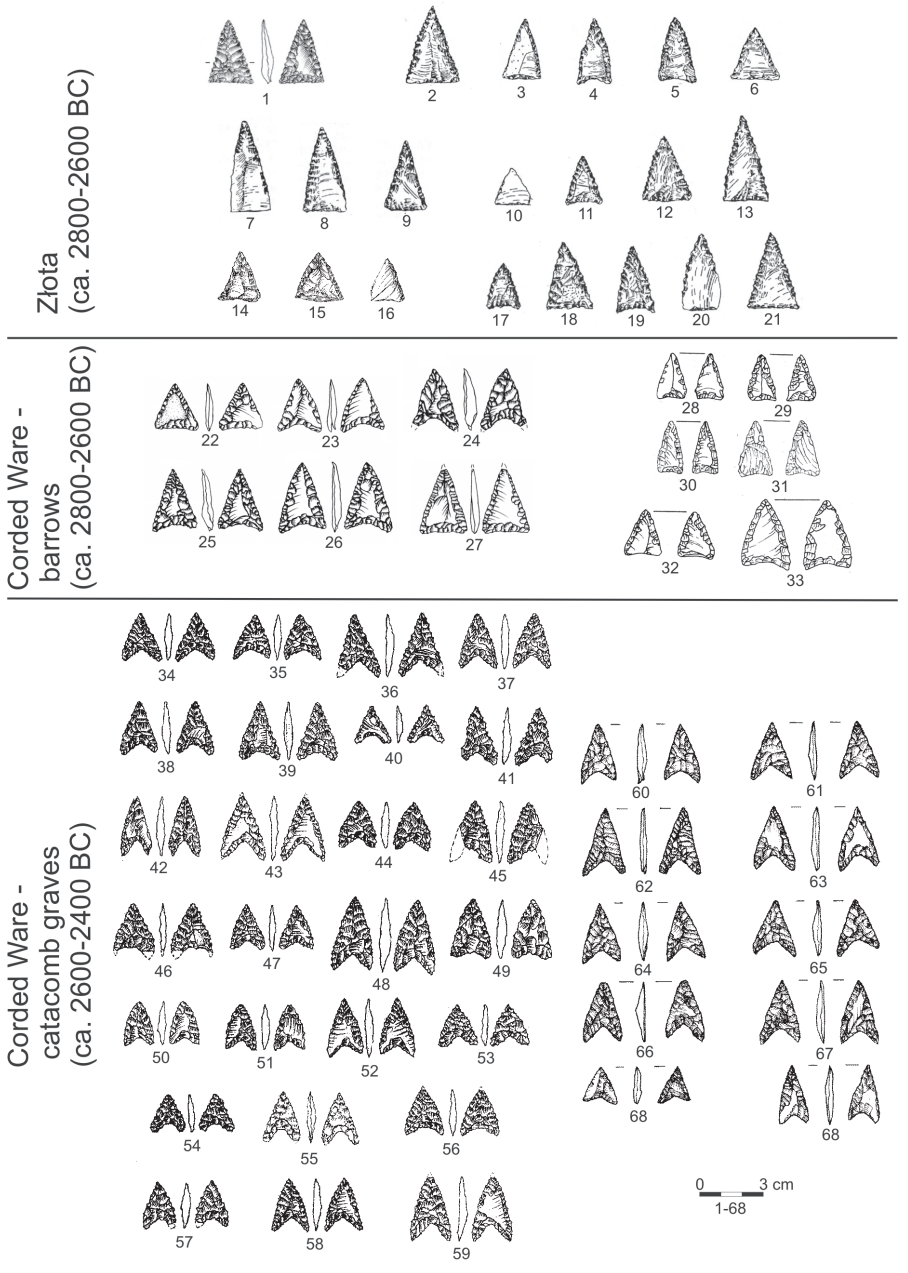

Fig. 15. Arrowheads from Małopolska Decline Neolithic graves: 1 – Sandomierz; 2-6 – Złota, "Nad Wawrem", grave 9; 7-9 – Złota, "Nad Wawrem", grave 28; 10-13, 17-21 – Złota, "Nad Wawrem", grave 97; 14-16 – Samborzec, grave 12; 22-27 – Ulów, barrow 1, grave 95/1; 28-33 – Bierówka, barrow B, feature 4a; 34-59 – Mydłów, 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, Szczytna). 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-Zakącie (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,

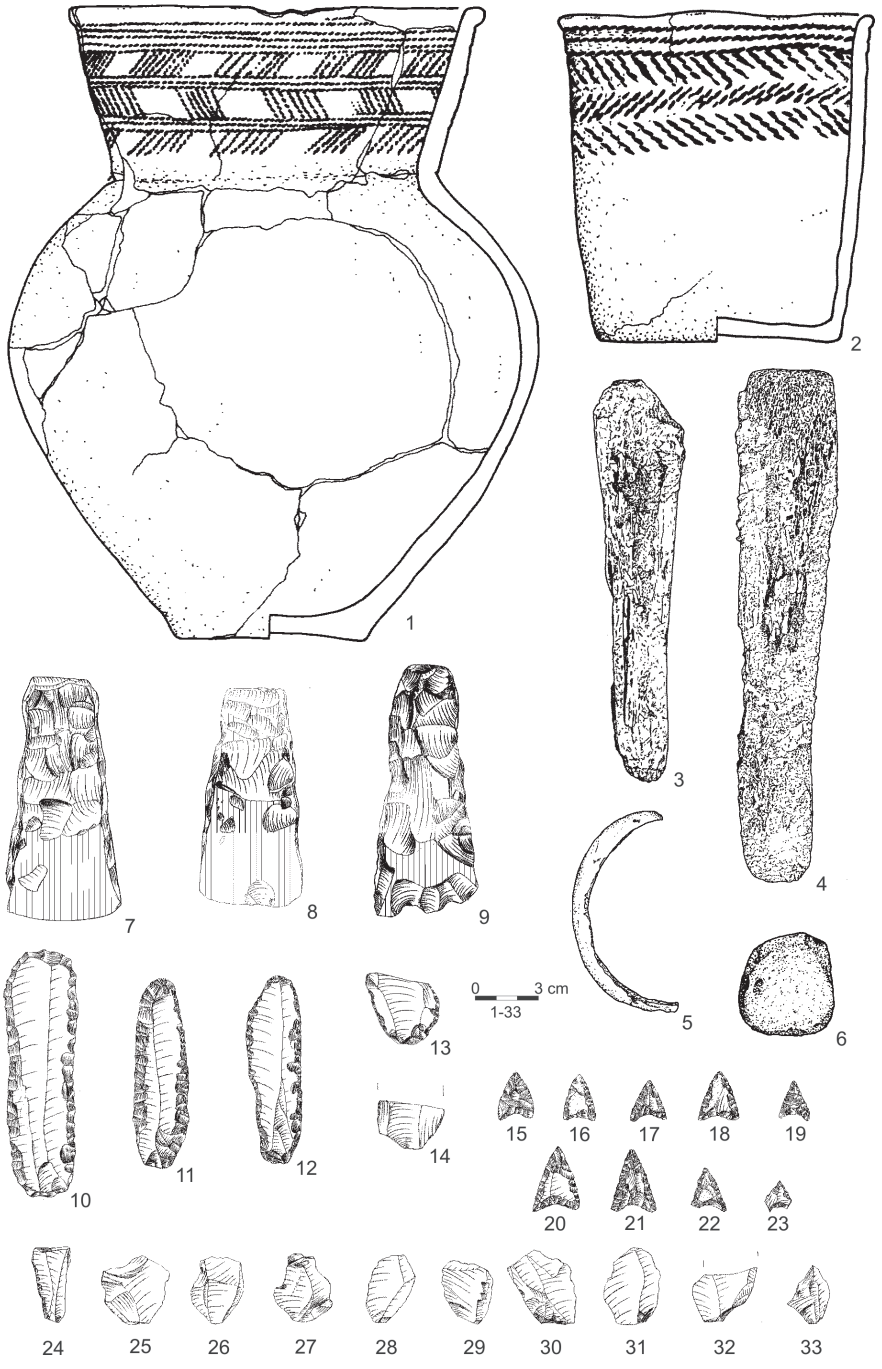

Fig. 16. A typical richly-appointed burial of a male adult from a Małopolska Corded Ware culture catacomb grave: Malżyce, barrow 2, grave 10. [Jarosz *et al.* 2009]

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 [Kośko *et al.* 2012].

Święte, site 11, grave 1149 and feature 1149B

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

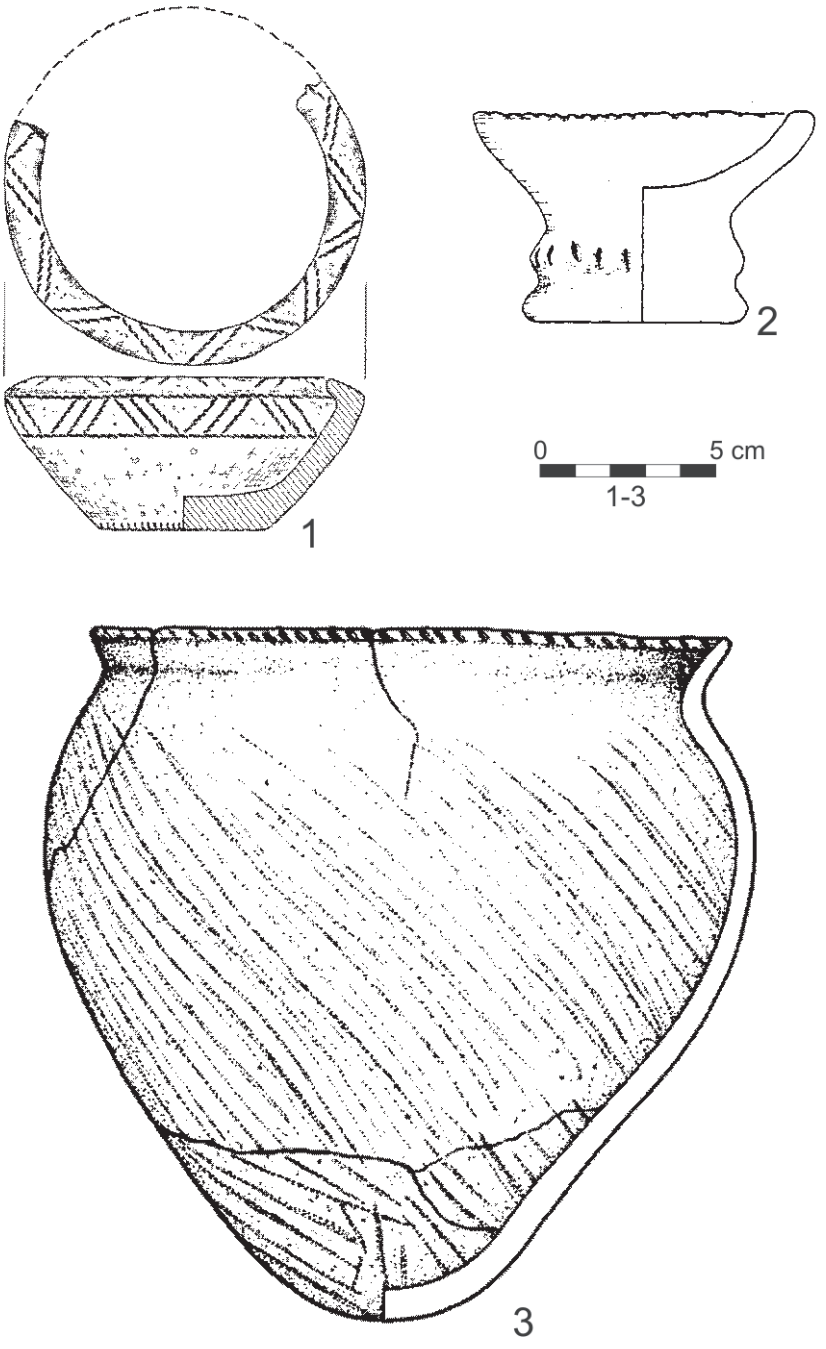

Fig. 17. Artefacts showing Yamnaya culture traits retrieved from Corded Ware culture cemeteries. 1 – Koniusza, site 1, from a destroyed grave; 2 – Balice; 3 – Święte, site 11, feature 1149B. [*after* Jarosz, Machnik 2000; Kośko *et al.* 2012; Tunia 1979]

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 [Kośko *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 Pałecznica). 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 [Kośko *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 [Melnyk, 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 contest [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 (Baniabic), 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

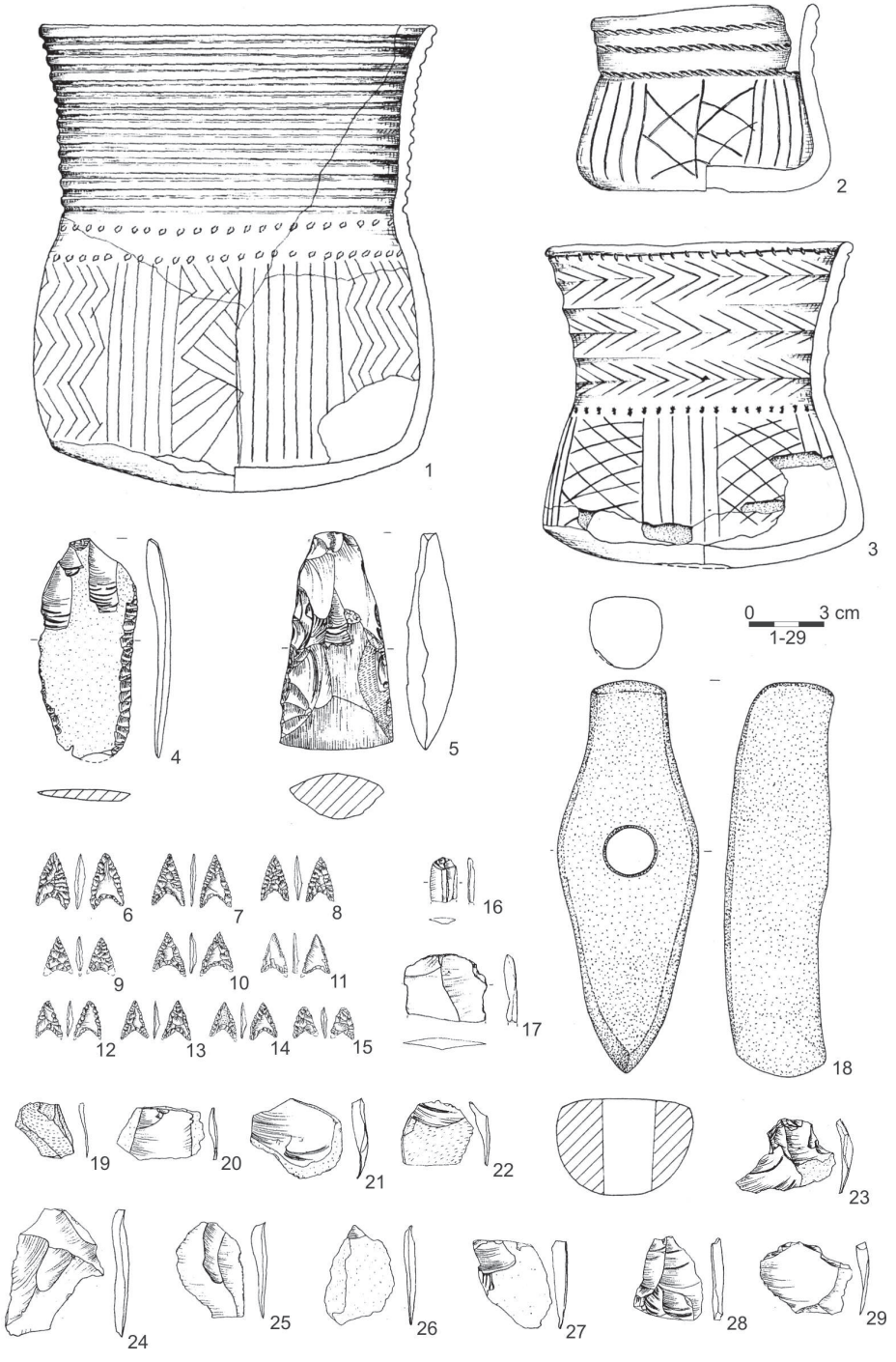

Fig. 19. Młodów-Zakącie. Inventory of a damaged grave [Machnik, Pilch 1997]

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 – DNIEPER AREA RELATION

The discovery of a grave in Młodów-Zakącie [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-Zakącie 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.

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TRAITS OF 'EARLY BRONZE' PONTIC CULTURES IN THE DEVELOPMENT OF LOWLAND AND EASTERN EUROPEAN FOREST CULTURAL ENVIRONMENTS IN THE BALTIC SOUTHERN DRAINAGE BASIN. AN OUTLINE OF THE STATE OF RESEARCH.

Since the 1920s, the European prehistoric literature has continually carried the theme of 'western' impact – migration – expansion by the nomadic, pastoralist societies of the Pontic-Caspian steppe/forest-steppe. The main controversial issues discussed in the literature have centred on the chronology, chorology, motives and continuity of movements, and ethnic identification. However, the areas referred to in this paper were usually marginalized or ignored altogether [Gimbutas 1956; 1977; 1980; Mallory 1989; Kośko 1990; Batora 2006]. The fact remains that the Oder, Vistula and Neman drainage basins began to be covered by 'Pontic *mental maps*' much later than the Balkans, Carpathian Basin and, moving further west, the Danube valley with its 'branch', extending across Moravia towards the Elbe [Heyd 2011; Pető, Barczi 2011] (Fig. 1).

On the Polish Lowland, the process in question gathered momentum in the first half of the 3rd millennium BC or, taxonomically speaking, when the traits mentioned in the title shared by 'Early-Bronze' Black Sea cultures (Yamnaya – YC, Catacomb – CC) and Babyno (BC) began to be received by local populations in the area under discussion. These cultures, it is assumed here, experimented with composite metals (mainly with an arsenic addition to copper).[1] By applying the term 'Early Bronze', in its extended meaning, to a given spatial context, the present author would like to avoid any broader discussion of the credibility of taxonomic-cultural evidence of the use of composite metals. It is assumed that the technological experience was long-lasting and complex (had many strands), for which many ar-

[1] For a broader discussion of metalworking in this context see the reports on the programme of research into *Circumpontic metallurgical province* conducted by E.N. Chernykh [1976; 1977; 1978a; 1992] and his associates [*see* Chernykh, Avilova, Orlovskaya 2000].

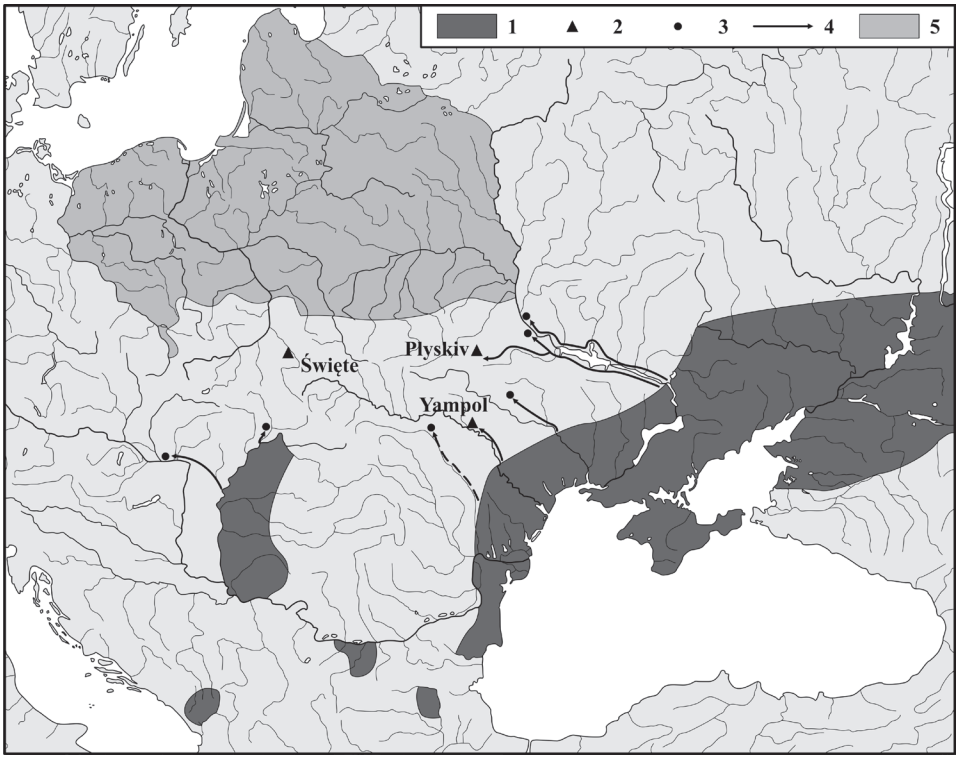

Fig. 1. The position of the Polish Lowland and the western portion of eastern Europe's forest zone (west of the Dnieper) on the mental map shared by the communities of early barrow/Yamnaya cultures [*see* Heyd 2011: Fig.1] – the spatial scope of J. Kondracki's [1969] physiographic classification was used. Legend: 1. Range of penetration by barrow culture communities (Eneolithic and Early Bronze – Yamnaya culture); 2. Excavation sites along the north-western direction of penetration by Yamnaya culture communities; 3-4. 'frontiers' of penetration = Eneolithic and Yamnaya culture 'barrow features' (3) and the routes of northern and western settlement penetrations by Yamnaya culture communities (4); 5. the area discussed in the paper

guments can be found in the discussions by Ukrainian and Russian scholars of the current significance of the periodization conception advanced by V.A. Gorodtsov [1905; 1907].[2] Another argument for such a position is the multicultural evidence, frequently indirect (i.e. taxonomically debatable), for 'Pontic traits' on the Polish Lowland or in the western portion of eastern Europe's forest zone (Fig. 1:1).

In this area, there are major complications with identifying the nomadic 'packets of Pontic traits' and the only attempt so far has concerned **site types** meant to suggest the existence of hypothetical taxa, temporarily identifiable only by single

[2] V.A. Gorodtsov associated the early period with the Yamnaya culture. For an attempt to amend this diagnosis *see* O.G. Shaposhnikova [1985].

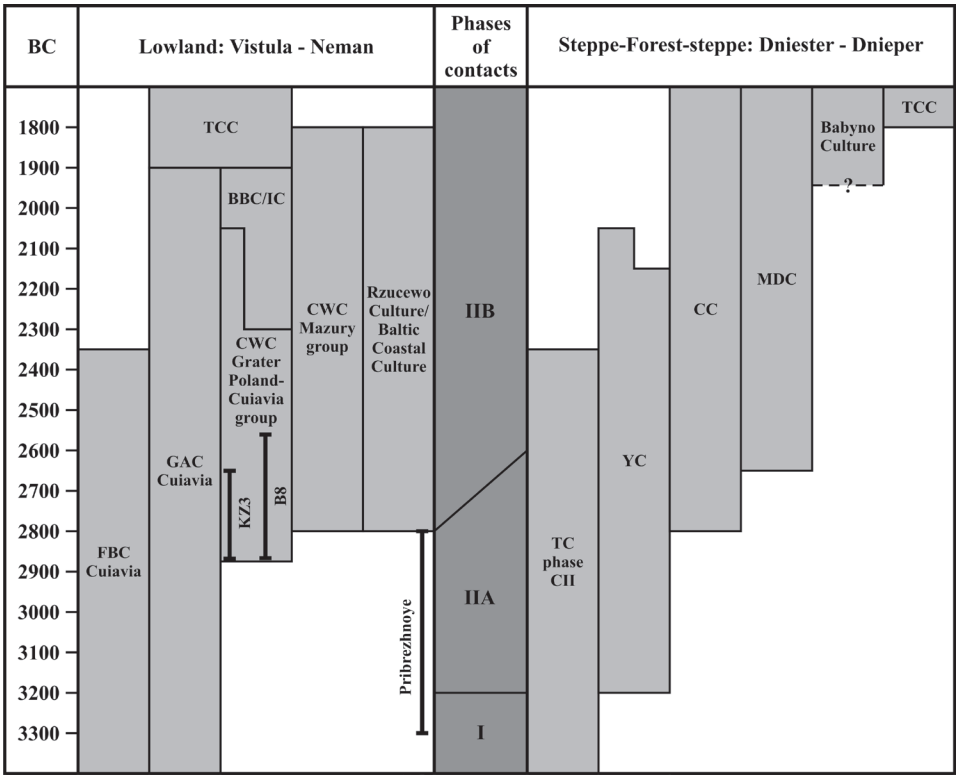

Fig. 2. Correlation of the principal taxonomic units of the Polish Lowland and the western portion of eastern Europe's forest zone with those of the Pontic steppe and forest-steppe. ^{14}C dates for sites Krusza Zamkowa 3 (KZ3), Bożejewice 8 (B8) and Pribreznoye are marked, as well as the chronology of the sequence of contact stages – for more information see text. [*after* Klochko, Kośko 2009; Zalcman 2010]

sites or artefact groups [Klochko, Kośko 2009: 277]. Relevant traits were identified here as components of local taxa ('central European') such as, principally, the Funnel Beaker culture (FBC), Globular Amphora culture (GAC), Corded Ware culture (CWC) or the Trzciniec Cultural circle (TCC), in the structure of which *Pontic markers* can be identified. In all these cases, we are dealing with communities having a *mental map* of the Pontic area and staying in longer or shorter contact with the populations occupying the Black Sea drainage basin from the latter half of the 4th, through the 3rd to the early 2nd millennia BC.

A. Pontic traits: cultural and chronological brackets and the question of identification

A typo-chronological analysis and ^{14}C measurements justify an assumption that the contacts of the 'lowland migrants', conventionally referred to as neighbour-

ly, developed in three successive stages and involved the following Pontic societies:

(I) **Late pre-Yamnaya, 'Eneolithic'** (in another – possibly more adequate – nomenclature – **early-barrow** ones) (from the middle of the 4th millennium BC to the late 4th and early 3rd millennia BC)

(IIA) **Early Yamnaya** (ca. 3200-2800/2600 BC)

(IIB) **Yamnaya/Catacomb/Pontic-Corded** (from 2800/2600 to the early 2nd millennium BC)

Stage I (Eneolithic-Late Eneolithic/Early Bronze) would be preceded by nomadic cultural phenomena, associated mainly with the FBC and GAC, in central Europe. **Stage II** (Early Bronze one) coincides with their development. **Substage A** would correspond in this periodization to the initiation of the CWC system (Old Corded phase – A), while **Substage B** would represent the diffusion and differentiation of 'Corded' groups – including the rise of epi-Corded and post-Corded ones. The latter process occurred also in eastern Europe, which is manifested by the forest-steppe taxa of this circle: Middle Dniester and Fatyanovo (Fig. 2).

The identification of syncretic settlement assemblages, which could document the cultural encounters on the Lowland assumed above, is most difficult for methodological reasons. Primarily, this comment applies to the technique of field exploration of these lands, which diminishes the already sparse and poorly distributed source complexes that document nomads' habitations.

The problem may be illustrated by linear investigations currently carried out along future roads and motorways in Poland with the excessive use of mechanical equipment. The study of all the results of these investigations (covering the Lubuskie and Wielkopolska Province sections of the A2 motorway and the Kujawy-Pomerania and Wielkopolska Province section of the A1 motorway) has not produced any significant data that would allow this author to make his opinion more specific.

The reason behind a present investigation of the questions outlined above is – in the first place – the need to resume the series of major source studies of the period from the 3rd to 2nd millennium BC that have been published over the last six years. This concerns in particular the works by Krivalcevich – a monograph of site Prorva 1, but in practice a comprehensive assessment of research into the Middle Dniester culture (MDC) [2007], Lakiza – a monograph of the period straddling the Neolithic and Bronze Ages in the Neman drainage basin in Belarus [2008], Toshev – a monograph of the Bronze Age in the Crimea [2007], Machnik, Bagieńska and Koman – a monograph of the Sokal group of the CWC, the questions of MDC impact in the Vistula drainage basin [2009], Manesterski – a monograph of the transition from the Neolithic to the Bronze Age in the Masurian Lake District [2009], Makarowicz – a synthesis of the TCC [2010], Zalcman – a monograph of a site in Pribierezhnoye or, more broadly, a study of an important fragment of the so-called Baltic Coastal culture (BCC) [2010], Razumov – a description of funerary flint inventories of Pontic 'Early Bronze' cultures: 3200-1600 BC [2011] and

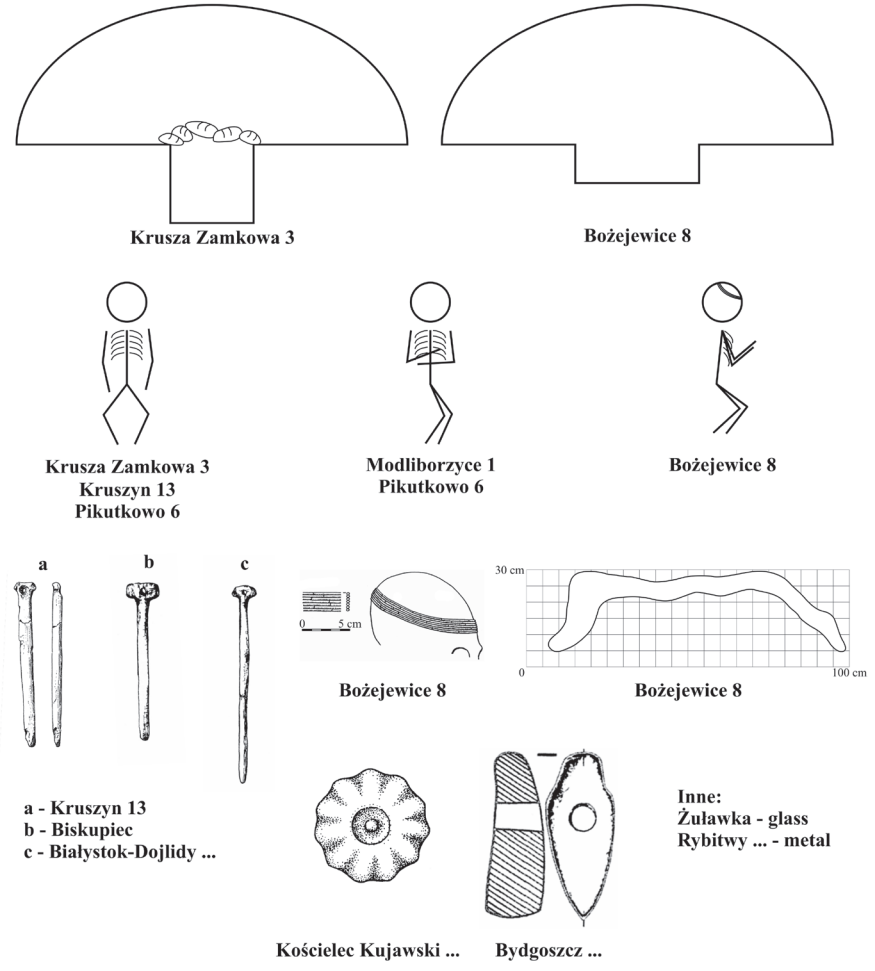

Fig. 3. List of markers of 'penetrations' by the communities of Pontic 'Early Bronze' cultures on the Lowland of the southern Baltic drainage basin (selection of best taxonomically recognizable traits)

Bratchenko – a monograph of a CC defensive settlement in Levencovka [2012]. Moreover, this period witnessed also significant doctoral dissertations that are now going to print: one by Sobieraj on the CWC between the lower Vistula and Neman rivers [2010] and another Pośpieszny devoted to CWC funerary practices between the Oder and Vistula rivers [2012].[3]

[3] In both cases the opinion refers to the typescripts of the dissertations kindly made available to the present author.

Besides the discovery of new sources, the period in question witnessed important field observations. Namely, the first YC (YC/CC) site was identified in the Vistula drainage basin, in Święte upon San [2010; fragmentary publication: Kośko, Klochko, Olszewski 2012]. Next, a Polish Ukrainian excavation expedition was organized and named 'Jampol' (2010) for the purpose of exploring the borderland between the YC/CC and central European CWC on the Middle Dniester. The results of the first stage of investigations have already gone to print [Kośko, Potupchik, Razumov 2014].

B. Pontic traits: a list of lowland markers

As suggested earlier, there was a development sequence of phenomena reflecting the dynamic growth of the mental map of the Central European Plain in the minds of communities occupying the Black Sea basin in the period straddling the Eneolithic and Bronze Age. In this context therefore, we assume that between the latter half of the 4th millennium BC and the early 2nd millennium BC, a relative growth in their cultural interaction with the Baltic drainage basin ought to be observed [Kośko 2002; Krywalcewicz 2007; Lakiza 2008; Klochko, Kośko 2009; Makarowicz 2010[4]; Sobieraj 2010; Pośpieszny 2012].

At this stage it is appropriate to review the principal markers of the phenomena vis-à-vis the stages of contacts distinguished earlier (Fig. 3).

1. NEOLITHIC-LATE NEOLITHIC / EARLY EARLY BRONZE STAGE (I)

In the outlined 'late-Pre-Yamnaya' space, traits of the syncretic taxa could be observed that are associated with the Zhivotilovka-Volchansk type and a group of Late Tripolie culture (TC) agglomerations, inclusive of the Usatovo group/culture, between the Dniester and Boh rivers. Their Lowland traits can be noticed in a set of FBC and GAC agglomerations where they could be carried by their co-makers, circulating along the routes joining the Baltic to the Pont [Kośko 1988: 106].

The principal marker of the earliest ties of this type – at the said 'transitory' stage – is Volhynia flint, reaching the Polish Lowland "along the Vistula route, the point of departure of which lay in the Lublin Province, specifically at the settlement cluster of this culture on the loess soils of the Nałęczów Plateau" [Libera, Zakościelna 2011: 105].

According to Libera and Zakościelna, from the Nałęczów Plateau, Volhynia flint "made its way to settlements on the Kutno Plain, 460 km away from its deposits and to the Kujawy Lake District and Chełmno Land, where two deposits are lo-

[4] *See* for a major synthesis of the autogenesis of the Trzciniec Cultural circle – TCC – as a 'borderland community'.

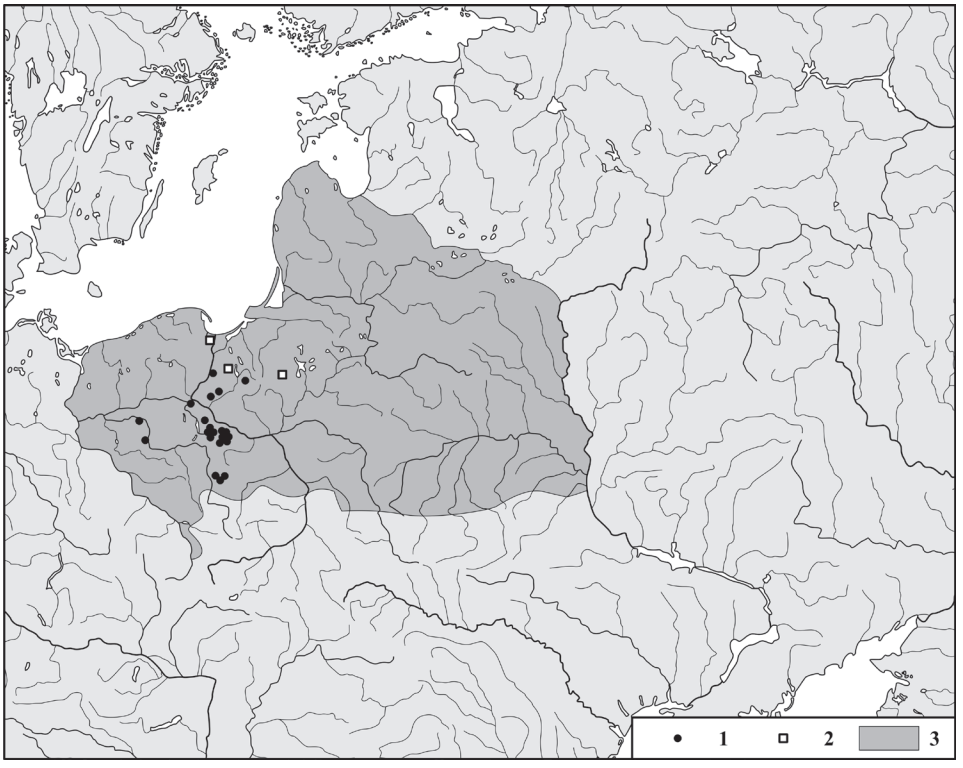

Fig. 4. Volhynia flint in Late Neolithic cultural environments on the Polish Lowland. Legend: 1. Funnel Beaker culture; 2. Globular Amphora culture; 3. area covered by the investigation project under discussion. [*after* Libera, Zakościelna 2011 supplemented by Prinke, Przybył 2005 and Wierzbicki 2013

cated as well, 540-550 km away from the flint-bearing areas" [Libera, Zakościelna 2011: 105] (Fig. 4:1). What attracts attention is "the presence there almost only of microlithic proforms and ready-made blade goods", which leads to the conclusion that from "the upper Horyn and Dniester, areas occupied then by 'Late Tripolie' communities (from phase CII) choice raw material was imported – one of a stable manufacturing and symbolic rank". The same is also observed in other regions of Late Eneolithic proto-civilizations physiographically considered to be parts of western Europe.[5]

A somewhat similar function was shared by another 'raw material value' that made its way to the Lowland from upon the Horyn, namely Volhynia basalt [Chachlikowski 1996]. Similarities concern both the users (Late Tripolie communities) and receivers (FBC eastern, Mątwy and Radziejów groups) [Pasterkiewicz, *et al.*

[5] *See* the region on the upper Tisza River [Kaczanowska 1980; 1985].

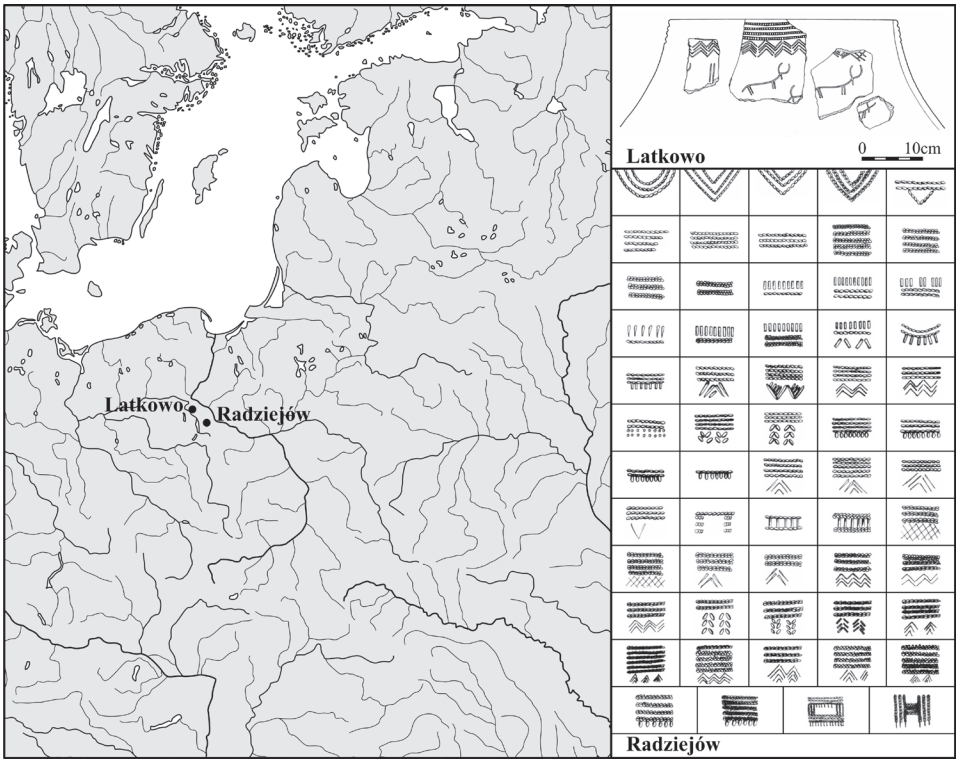

Fig. 5. Traits of 'Late Tripolie' pottery tradition identified within the Funnel Beaker culture, Radziejów group. [*after* Rybicka 1995: Radziejów, Kośko 2000: Latkowo]

2013]. Both raw materials share a similar geological position, which could contribute towards their simultaneous distribution across the Polish Lowland. To assess the share of this basalt variety in the above mentioned area is very difficult indeed now because of the elaborate methodological geological procedures involved and the fact that to trace the typogenesis of individual cases of basalt tools, it is necessary to use complex specialist analyses.

There is no data to support possible continued interest on the part of local communities in the above mentioned Pontic raw materials – especially as far as Volhynia flint is concerned – after GAC settlers reached the Lowland ca. 3200/3100 BC [Libera, Zakościelna 2011: 105] (Fig. 4:2). Possibly, this is related to some *political* changes in Black Sea communities.

The second group of Pontic traits reaching the Lowland, specifically the Vistula and Oder drainage basins, is made up of Black Sea pottery traditions, identified with the Mątwy Cultural Component (MCC). In the period under discussion, this assessment covers 'Late Tripolie pottery-related phenomena' dated to the timeline

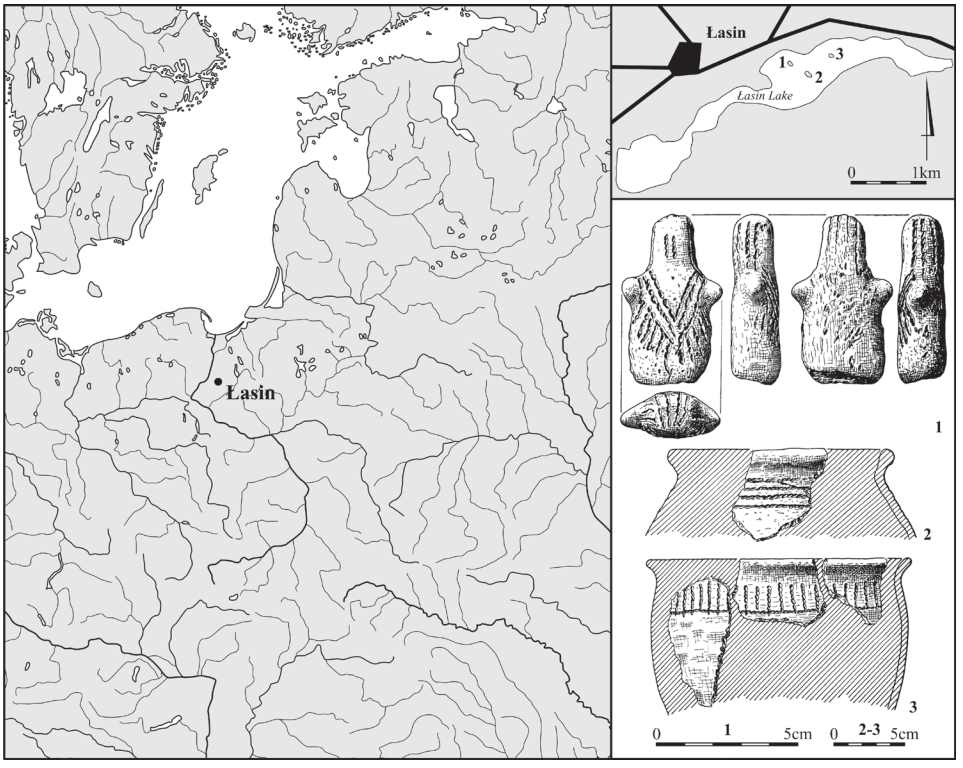

Fig. 6. Łasin type. Site location and stylistic traits of a hypothetical assemblage. [*after* Kirkowski 1984]

after ca. 3400-3200 BC and observable chiefly in the western Kujawy Upland. These phenomena were activated by the 'second wave of migrations of barrow cultures' [Kośko 1988: 109; Kośko, Langer, Szmyt 2000] and included the intensified reception of ornaments painted with a black pigment [e.g. Opatowice 42, Kośko 2000], zoomorphic motifs [e.g. Latkowo 5, Kośko 1990; 2000], and *Baroque corded motifs* [e.g. a site complex on the Radziejów Hills, Rybicka 1995: Fig. 12; Kośko, Sikorski, Szmyt 2010].

This packet of stylistic traits is recorded mainly in the area occupied by the FBC Radziejów group – as a component of Baden trait acquisition on the Lowland (Fig. 5). Attempting to trace the typogenesis of a given packet of Late Neolithic traits – referring to the studies by Videjko [1999] – the present author has drawn attention to the 'culture-making power' of the 'Transcarpathian' BC. Here one should note this particular locus where the drainage basins of the Tisza and Dniester meet and where a 'local version of Baden-trait acquisition' could have developed and affected the frontier communities of the Late Tripolie culture (CII),

emerging north of the agglomeration under discussion [Kośko 2000: 157]. An inspiring elaboration on these assessments, as it seems, has recently been made by Rybicka and Pozikhovski [Pasterkiecz, *et al.* 2013] on the upper Horyn, in the vicinity of Ostrog. Their observations suggest that 'Baden-Late Tripolie' impact centres – reaching out as far as Kujawy (the impact operated both ways) – could have covered the lands from the Dniester to south-western Volhynia, which are, however, difficult to describe taxonomically now.

2. THE CASE OF THE ŁASIN TYPE AND 'CORDED ORNAMENTATION BAROQUE' IN THE COASTAL AND LAKE DISTRICT ZONE OF THE EASTERN BALTIC DRAINAGE BASIN

A separate treatment is deserved by the **Łasin type**: a set (hypothetical assemblage) of pottery recorded on an island on Lake Łasin (Iława Lake District), comprising a female figurine ornamented with "a schematic representation of robes and face, marked with the impressions of a thick cord" and minimum two vessels ornamented with corded motifs [Kirkowski 1984] (Fig. 6). The Pontic nature of genetic affiliations of the 'hypothetical assemblage' has not given rise to any controversy since the moment it started to be topogenetically analyzed. According to Ukrainian archaeologists (for instance Yuri Rassimakin – oral communication), the closest analogies to the Łasin figurine should be sought in the Serozlijivka cycle/strand/type, being an expression of the 'barbarization' of Pontic Eneolithic figural plastic arts by syncretic 'Tripolie-steppe' population groups on the middle Boh and Ingul rivers. In consequence of the cited assessment, the artefact was dated to phase CII of the TC or to the early 3rd millennium BC.

In connection with the above taxonomic considerations, Movsha's conception was cited, providing for a possible genetic relationship whereby the late TC[6] transformed into the CWC [Movsha 1971: 54; Kirkowski 1984: 65]. One of the distinctive traits of the pottery style of the northern group would be – relevant for the present discussion – 'corded ornamentation Baroque'.

The Łasin type should be studied in a broader context, that of the development of pottery styles boasting elaborate 'corded motifs' in the lake district and coastal zone. The motifs are recognizable within taxa identified with the Rzucewo culture (Baltic Coastal culture) or, to put more broadly, with the Vistula-Neman interior of the CWC (Masurian group) [Sobieraj 2010]. This tendency is particularly well pro-

[6] Phase CII – *see* the so-called northern group TC {Movsha 1971].

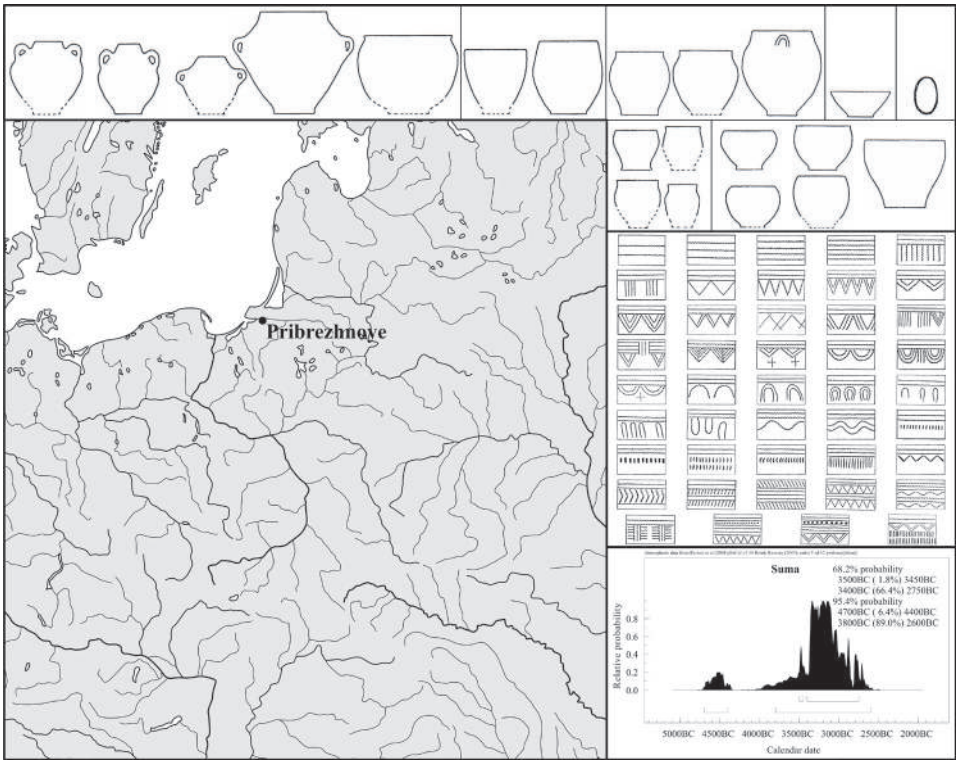

Fig. 7. Pribrezhnoye type. Site location, traits of 'Corded ornamentation Baroque' of pottery and foundations of radiocarbon chronometry. [*after* Zalcman 2004; 2010]

nounced on the Pribrezhnoye site, Kaliningrad Region, investigated by Zalcman, (**Pribrezhnoye type**), the radiocarbon chronometry of which corresponds to phase TC CII: ± 3500-2750 BC [Zalcman 2004; 2010] (Fig. 7).

Against this reference background, it would be worthwhile to scrutinize typological connections to older phenomena, occurring after 2600/2500 BC in the Masurian Lake District, known as **Ząbie-Szestno type** (Manasterski 2009) or those of *corded ornamentation Baroque* in the CC [Bratchenko 2007; 2012: Fig. 57]. It is necessary to implement a programme of integrated analysis of these phenomena that would be part of the project of their systemic radiocarbon dating.

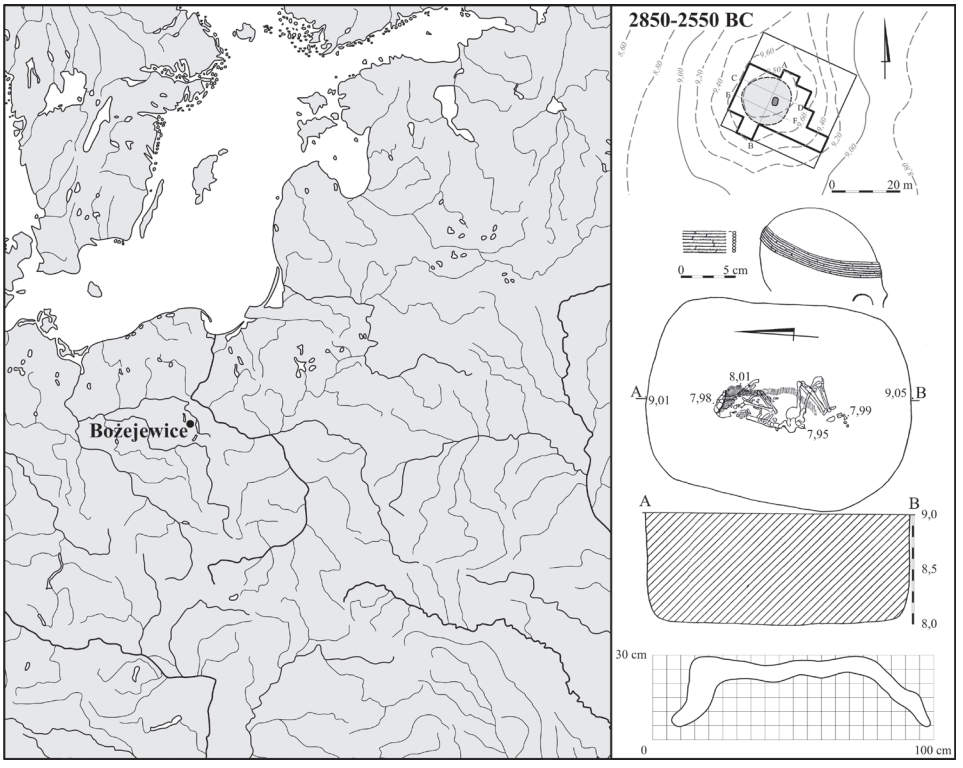

Fig. 8. Bożejewice 8, Kujawy-Pomerania Province: the most diagnostic barrow feature on the Polish Lowland for identifying 'Pontic traditions'. [*after* Kośko, Kločko 1991]

3. EARLY BRONZE – EARLY YAMNAYA STAGE (IIA)

In the set of traits that can be considered a reflection of contacts with the Early Yamnaya settlement, barrow grave features from Kujawy could be placed now [for a more generalizing view see Klochko, Kośko 2011: 265] such as Krusza Zamkowa [Kośko 1992; Goslar, Kośko 2011], feature 427, representative of the 'old corded' horizon, and Bożejewice 8, feature 32B, whose highly debatable cultural attribution must also admit of a conception involving the direct influx of a population group belonging to an indeterminate Black Sea *barrow taxon* [Kośko, Kločko 1991] (Fig. 8).

As diagnostic traits of the 'Early Yamnaya' tradition (stage IIA) should be considered: the pit structures of grave excavations (Krusza Zamkowa 3, Bożejewice 8), the hypothetical batrachian arrangement of an infantile skeleton in a grave in Krusza Zamkowa 3, a copper diadem (consisting of seven strings of tubes –

Bożejewice 8) and a wooden object – a hypothetical composite bow from Bożejewice 8 (Fig. 3). Under the preliminary identification or the outline of cultural classification used in this paper (*see* preliminary remarks), the above-named sites make together a hypothetical taxon: **Bożejewice-Krusza Zamkowa type**.[7] Under this type one could try to subsume also two other barrow sites from Kujawy: Modliborzyce 1 and Kruszyn 13, in the case of which, as Pontic traits should count the supine position of the skeleton? (Modliborzyce 1) and a hammerhead pin? (Kruszyn 13) [Wiślański 1978; Kośko 1991; Pośpieszny 2009; 2012] (Fig. 9).

In this approach, it is suggested that these traits, until now unspecifically considered to be 'Yamnaya-Catacomb markers', be included in a group of taxonomically earlier traits: diagnostic of an 'early Yamnaya' impact.

The above-named set of sites should be considered as an argument in favour of the hypothesis about the rise of a cultural syncretic community with a strong share of 'Pontic traditions' on the Kujawy Upland. The share could have been an emanation of the impact of syncretic – 'Pontic/Baltic' communities, occupying the Podolia-Volhynia, middle Dnieper frontier, preliminarily identified in the upper Ros' drainage basin.[8]

There is no source evidence available now if the Bożejewice-Krusza Zamkowa type continued at stage IIB (Fig. 2).

4. EARLY BRONZE, YAMNAYA/CATACOMB STAGE (IIB)

Until now, the studies of 'Yamnaya/Catacomb' Pontic-Baltic ties have concentrated on the topogenesis, distribution and especially the symbolic meaning of *fluted maces* [Kośko 2002; Klochko, Kośko 2009: 287], contributing towards a revision of routes between the seas to show how they may have run in the second half of the 3rd and the 2nd millennia BC [Klochko, Kośko 2009: Fig. 17]. The transfer of this 'insignia invention' from the CC circle (to put more broadly: from the Inhul-Donets Early Bronze Civilization) towards the Baltic basin involved the following cultural systems: CWC, TCC, the circle of tumulus cultures and the Lusatian urn culture. Beginning with the TCC, the cultural space of the Baltic basin witnessed the rise of a secondary development and manufacturing centre of such

[7] *See* earlier Bożejewice type [Klochko, Kośko 2009: 279]

[8] Syncretism noticeable in the funerary rite in a barrow investigated in Plyskiv, Pogrebishche Region – kind oral communication from Mychajlo Potupchik [*see also* Lobay 1985]. In this context, similarities between YC features on the San River (Święte 11), in the Vistula drainage basin, and on the Tikych River (Dobrovody) – the middle Boh drainage basin, not far away from the Ros' drainage basin – look encouraging [Kośko, Klochko, Olszewski 2012;. *see also* Machnik..., in this volume].

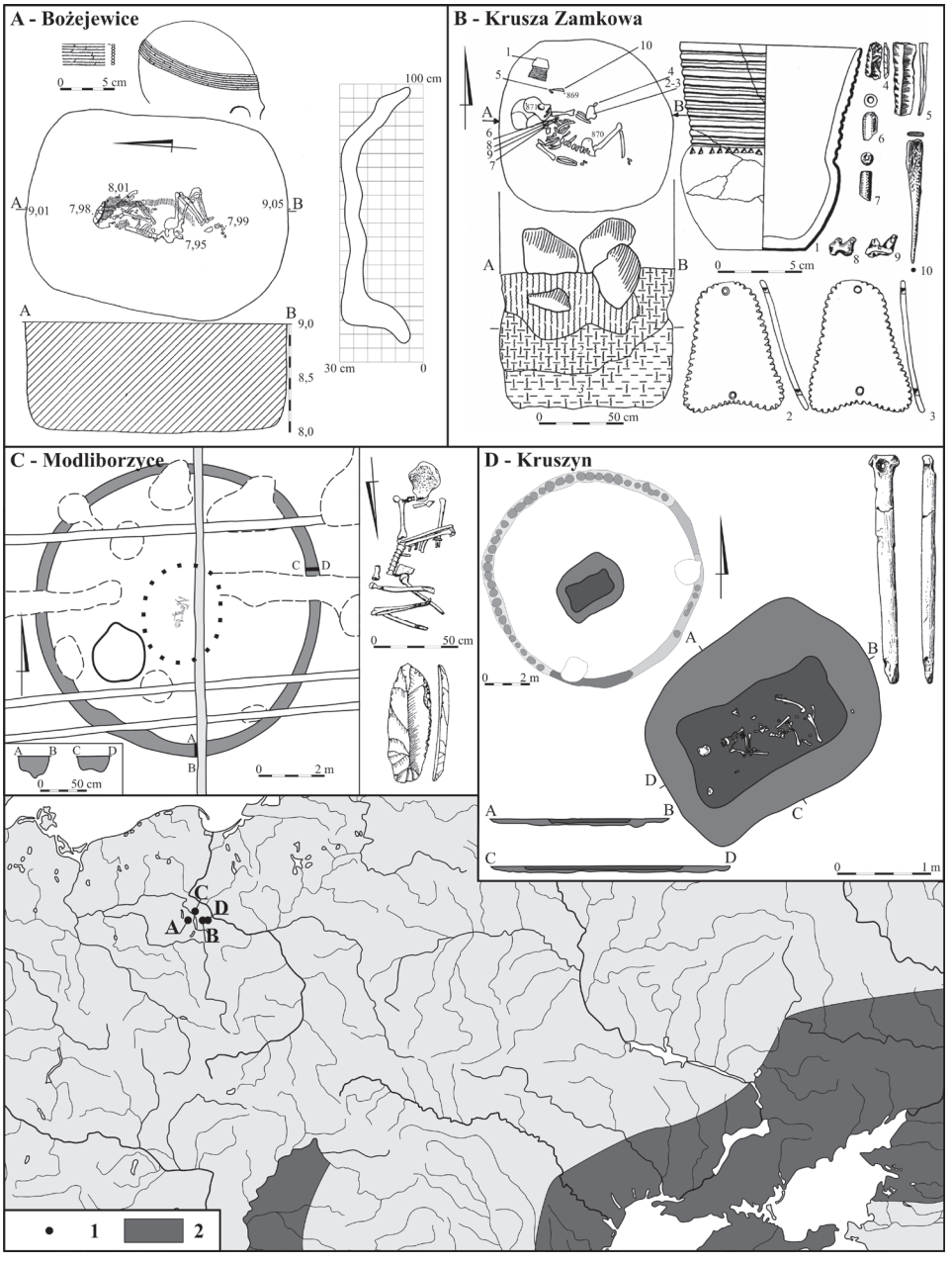

Fig. 9. Bożejewice-Krusza Zamkowa type features. Legend: 1. Bożejewice 8, Krusza Zamkowa 3, Modliborzyce 1; Kruszyn 13 site locations and ritual and inventory traits. [*after* Kośko, Kločko 1991; Kośko 1992; Wiślański 1978; Pośpieszny 2012]; 2. Range of penetration by barrow culture communities (Eneolithic and Early Bronze – Yamnaya culture)

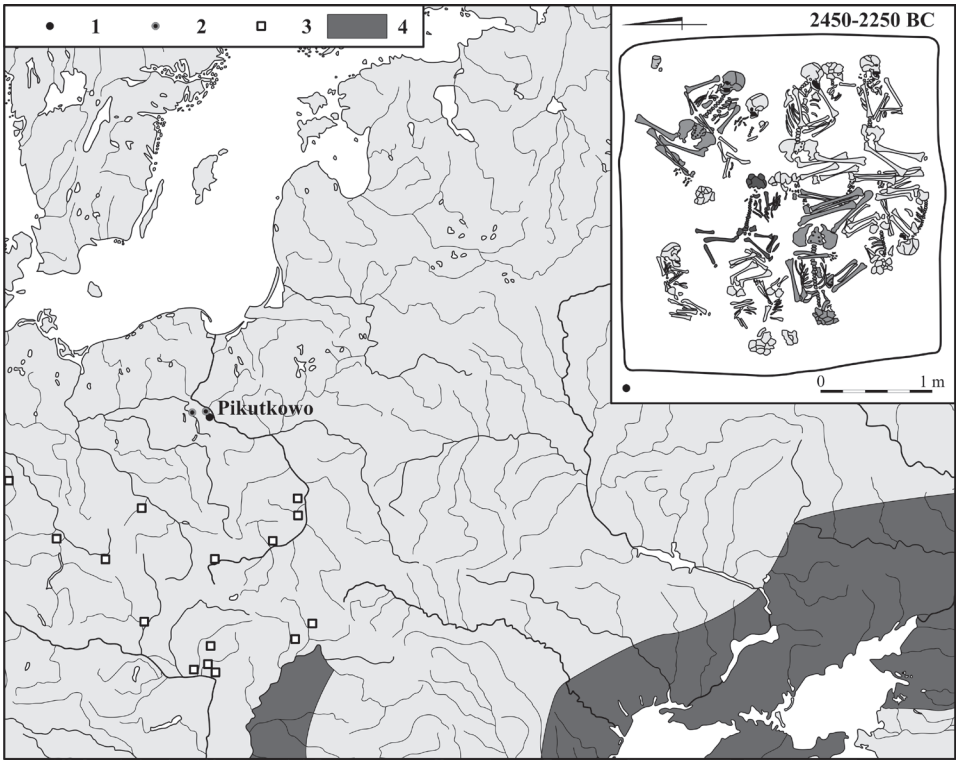

Fig. 10. Pontic traits of funerary rites recorded outside Yamnaya culture range, between the Danube and Baltic. *After* Batora [2006] supplemented by the author. Legend: 1. Pikutkowo 6, Kujawy-Pomerania Province [Niesiołowska 1967; Pośpieszny 2012]; 2. Krusza Zamkowa 3; Kruszyn 13, Kujawy-Pomerania Province [Goslar, Kośko 2011; Pośpieszny 2012]; 3. burials with the batrachian leg arrangement in the drainage basins of the Tisza, Danube, Vistula, Oder and Elbe rivers; 4 – Range of penetration by barrow culture communities (Eneolithic and Early Bronze – Yamnaya culture)

maces coincident mainly with the development of the TCC and tumulus cultures. This makes it harder to distinguish between items made in the drainage basins of the Vistula and Oder and those manufactured in the Black Sea basin.

From the period of the 'Baltic reception' of *fluted maces*, we know so far of only one relatively reliable piece of evidence, namely a YC/CC site recorded in the Vistula drainage basin, specifically on the San River, at Święte, site 11, 2191-2036 BC [Kośko, Kloczko, Olszewski 2012]. Other pieces of evidence – from the set of principal markers of 'Pontic traditions' at stage IIB in the relevant 'Baltic' area which include, among others, niche graves with stylistically exogenous pottery and the Black Sea (YC/CC) traits of funerary rites – come from Old Uplands, from the Złota culture and a group of the Małopolska CWC [Włodarczak..., in this volume].

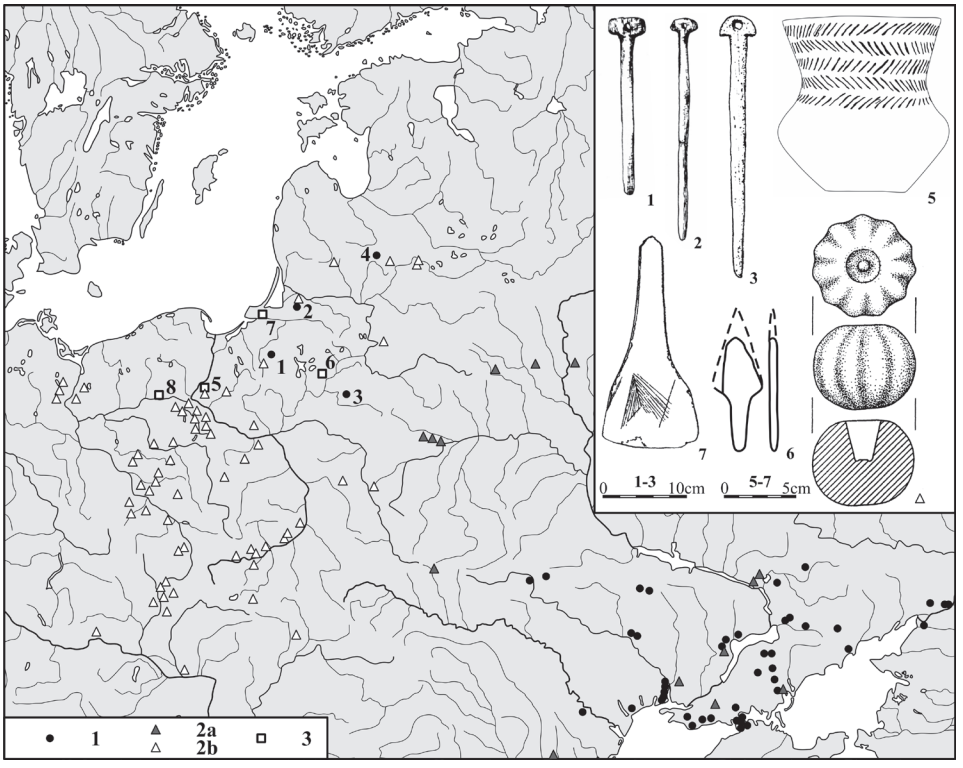

Fig. 11. So-called hammerhead pins and a selection of other artefacts formally identified with Pontic Early Bronze cultures (see stage II B). Legend: 1. hammerhead pins in the circle of Pontic cultures and in the Baltic drainage basin; 2a. fluted maces – Pontic-Caspian zone; 2b. Fluted maces – Baltic zone; 3. pottery, metal, glass subjects (1 – Gromowo, 2 – Biskupiec, 3 – Biskupiec-Dojlidy, 4 – Gyvakarei; 5 – Gzin-Żwirownia, 6 – Rybitwy, 7 – Makhovoye, 8 – Żuławka, Δ – fluated mace – Kościelec Kujawski, Kujawy-Pomerania Province). [*after* 1 – Latynin 1967, Okulicz 1973, Tebelškis, Jankauskas 2006; 2 – Kośko 2002, 2009; 3 – Okulicz 1973, Rola 2009, Kośko 2011]

Their Lowland 'replicas' are not known to us although, for instance, niche graves could be dug here because of favourable soils on the Kujawy Upland. The list of such markers is relatively short and includes: the batrachian arrangement of the legs of a skeleton in a CWC grave in Pikutkowo 6 (ca. 2450-2250 BC) [Niesiołowska 1967; Pośpieszny 2009; 2012], the supine flexed position of corpses in two other burials from the same grave (Fig. 10), hammerhead pins which – except for the specimen from Kruszyn 13 – must be assigned to stage IIB (*see* radiocarbon dating of a grave feature at Gyvakarai, eastern Lithuania: ca. 2200-2050 BC) [Tebelškis, Jankuskas 2006], metal objects from Rybitwy, Masurian Lake District, and possibly Makhovoye, Sambia, and a glass bead from Żuławka on the middle Noteć River related to a GAC settlement, which is radiocarbon dated to the middle

of the 3rd millennium BC [Rola 2009: 253]. In a similar category of 'Pontic affiliation', a vessel from Gzin near Chełmno upon Vistula [Kośko 2011], indicating connections to the style of MDC vessels, could be placed and considered a sign of a broader stylistic phenomenon (Fig. 11).[9] The emergence of this form on the Lowland falls on the period when the contacts between Małopolska CWC groups and the MDC strengthened, which is shown by the latest investigations on Grzęda Sokalska and Rzeszów Foothills.[10]

The set should also include a few other artefacts as hypothetical derivatives of Pontic artefacts. Among the additions are 'Iwno' bone pins with a rectangular head from Szelejewo and Żegotki (beginning of the 2nd millennium BC). Presumably, they are heavily transformed 'hammerhead' forms. Other additions include a certain number of imports/imitations of Inhul shaft-hole axes (?).

Except for those from Pikutkowo 6, all the other markers come from sites located outside the Kujawy Upland, i.e. outside the territory considered a hypothetical centre on the Pontic *mental map* of the Lowland at stages I and IIA.

5. PONTIC TRAITS IN THE BALTIC DRAINAGE BASIN: CLASSIFICATION OF LOWLAND RECEPTION AREAS AND IMPACT ROUTE DEPARTURE CENTRES

In the Lowland portion of the Baltic drainage basin, between the Oder and Neman rivers, two regions of the reception of 'Early Bronze' Pontic traits can be distinguished:

(1) The Kujawy area (closely related to the black soils of the Kujawy Upland) whose origins are related to the reception of the oldest traditions in the Pontic zone, to Neolithic *mental maps*, in the first place to the areas on the so-called Volhynia trail (or rather Volhynia trails), and

(2) The Vistula and Neman (possibly Dvina) area located in the lower sections of the drainage basins of these rivers; its typogenesis is more complex and uses a set of later experiences – from the 3rd millennium BC – identified as the Dnieper-Berezina-Neman route [Kośko 2002: 68].

As the contact region for the communities of the Kujawy Upland in the Black Sea basin should be considered the borderland between Volhynia and northern Podolia and the Middle Dnieper area (Ros' drainage basin). Specifically, the route

[9] *See* the Dnieper component in the **Ząbie-Szestno type** [Manasterski 2009: 147] and relevant pottery drawings.

[10] *See* Machnik, Bagińska, Koman 2009; Machnik..., in this volume; for the MDC western impact routes *see* Bunyatyan, Samolyk 2009.

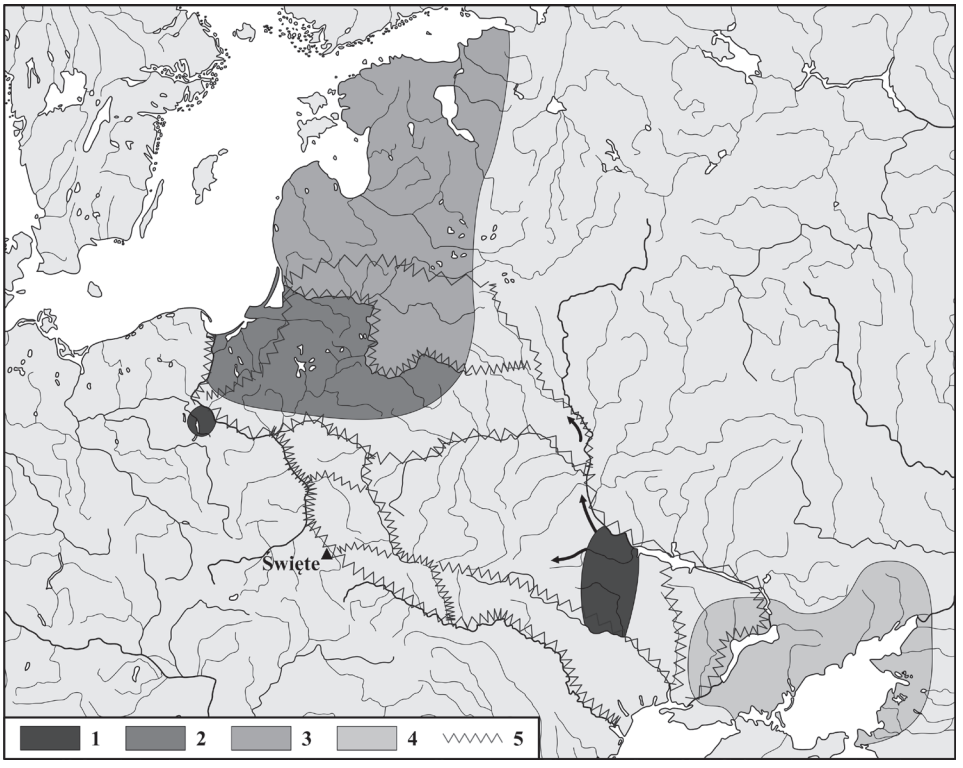

Fig. 12. Penetration routes of Lowland and eastern Europe's forest biocultural environments by the communities of Pontic 'Early Bronze' cultures. Legend: 1. Area between the middle sections of the Dnieper and Boh as a region of departure for Baltic penetration routes at stages I-IIA – with the Kujawy Upland as the region of destination; 2-3. Areas of penetration at stage IIB: areas between the Vistula and Neman (2) and between the Neman and Dvina (3); 4. Ingul-Donets Early Bronze Civilization; 5. Route network. Święte 11, the first YC feature (*trizna*) in the Baltic drainage basin. [*after* Kośko 2002; Kośko, Klochko, Olszewski 2012].

could have followed a chain of elevations stretching SE-NW and known as the Dnieper Upland (Ukr. *Pridniprovskaya Vysochina*), separating the Dnieper and Boh drainage basins. It is there that the sources of the Ros' are located (*see* earlier remarks). In terms of soil type, the elevations are identified as a belt of 'leached steppe' [*see* Makohonienko, Hildebrandt-Radke 2014]. In the system of watershed culminations – along the Upland crest – one can expect a network of locations marking the route of barrows of which one is the feature at Plyskiv mentioned earlier. Curiously enough, such watershed landscapes have not been sufficiently archaeologically explored until recently.[11]

[11] *See* the history of investigations on Grzęda Sokalska [Machnik, Bagieńska, Koman 2009: 5-8].

So general an assessment concerns stage I, while at stage IIA the contact region could possibly be narrowed down to YC settlement clusters on the Middle Dniester or, in a further perspective, to the central area of the Inhul-Donets Early Bronze Civilization [Klochko, Kośko, 2013]. A certain argument in favour of the latter opinion could be supplied by the distribution range of fluted maces within the CC range, 'corded ornamentation Baroque' in the CC pottery style and amber goods shaped like the miniatures of axes from the Donets River area – associated with the 'younger' CC [Kośko 2002: Fig. 16; Bratchenko 2007; Klochko, Kośko 2009: Fig. 19 and Fig. 20 – Novonikolskoye].

6. PARTICIPANTS OF "BALTIC PENETRATION" AND THEIR POSITION IN THE CLASSIFICATION OF PONTIC EARLY BRONZE CIVILIZATION

The opinions advanced above appear to indicate that the interest in the Baltic drainage basin was shared by only a part of Pontic communities from the frontiers of the Inhul-Donets Early Bronze Civilization [Klochko, Kośko 2013] (Fig. 12). Referring to the current knowledge on the routes between the seas in the 4th and 3rd millennia BC, it can be claimed that the most instructive indication, leading to the 'primal source', is in this case the Volhynia-Middle Dnieper route in a version advanced in the studies of the eastern European GAC exodus [Kośko, Szmyt 2009; Łysenko, Szmyt 2011; Szmyt 2013a]. Viewed from the chronological position, the GAC population exodus could have kindled interest in the Kujawy Upland – i.e. their hypothetical 'breeding ground' – among Pontic 'barrow communities'. Any taxonomic description of these groups should take account of their considerable cultural syncretism. It must be observed that the current state of taxonomization of the Volhynia-Middle Dnieper route in the 4th and 3rd millennia BC does not reveal any encouraging interpretation offers, for instance, any syncretic units combining Pre-Yamnaya/Yamnaya traits with those of the GAC and early CWC. A harbinger of such an offer is, as it seems, the observations concerning the barrow at Plyskiv in the upper Ros' drainage basin mentioned earlier (= **Plyskiv type**?).

Any attempts to make the above assessment more specific give rise to a number of ambiguities and this applies not only to the degree of taxonomic identification. The ambiguities concern above all economic foundations or an adaptation strategy used in penetrating the largely bioculturally different habitats of the central European Plain and some time later (?) the eastern European forest zone, too. Furthermore, doubts concern also the diagnoses of the goals of these intrusions.

Perhaps the best method to find an explanation would be an attempt to modify the economic image of 'Yamnaya nomads' (Merpert 1974: 98). Significant arguments for modifying their dominant image as simply 'herders' (YC/CC) are supplied by natural science studies of the 'Yamnaya diet' made both on the Caspian steppes and in the forest-steppe on the Middle Dniester [Shishlina *et al.* 2009; Goslar, Kośko, Razumov 2014]. In the light of these studies, the economic image of the YC acquires a strong fishing aspect as an important dimension of life experience. Four and a half millennia later, in the 16th century AD, a similar picture of the subsistence strategy of 'taming the steppe' was observed among the Cossacks. In the words of Jakovenko "the Cossack way of life involved employment at occupations on the steppe: fishing, hunting, caravan escorting and occasional robbery" [Jakovenko 2011: 178].

Bearing this mind, it can be assumed that life in the forest zone (eastern Europe) or on the Lowland (central Europe) should not have exposed settlers to any existence-threatening hazards.

The goal of the penetration remains, however, an open question. Its motives can be more comprehensible if it is assumed that groups penetrating the drainage basin of the Vistula and later that of the Neman were culturally syncretic.

7. CONCLUSIONS

Suspending any final conclusions concerning the goals of the 'Baltic penetration', it is appropriate to list the areas of relatively certain findings:

- The penetration of the Lowland Baltic drainage basin by 'Early Bronze' Pontic communities in its early phase resembles the Eneolithic experience: Late Tripolie from the 2nd half of the 4th millennium BC (stage I) see Fig. 4.
- The adaptation experience gathered in the Early Bronze penetration did not cumulate: from 2800 to 2600 BC, a change in adaptation strategy and possibly of the goals of Lowland/forest zone penetration are observed
- The Kujawy Upland continues to be the destination of routes in the period of their development and a transit location afterwards (stages I and IIA), while their hypothetical departure area is located between the middle sections of the Boh and Dnieper rivers (Ros' drainage basin), see Fig. 12:1.
- On the Kujawy Upland, one should allow for the possibility that short-lived syncretic cultural units formed there, chiefly 'Corded-Yamnaya' ones, of the **Bożejewice-Krusza Zamkowa** type (stage IIA). Incidentally,

it is absolutely necessary to continue the investigations of barrow features on the Inowrocław Plain.

- In the second half of the 3rd and in the early 2nd millennia BC, 'Early Bronze' scouting expeditions, initiated by YC groups, were continued by 'Corded-Yamnaya-Catacomb' communities (with a special, 'transit position' of the MDC) and reached the lake district and coastal zone in the eastern Baltic drainage basin, see Fig. 12:2, 3.

The above conclusions should be treated as a list of recommended research projects.

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PONTIC INFLUENCE IN THE TERRITORY OF PRESENT-DAY POLAND AS ILLUSTRATED BY LEAF-SHAPED POINTS WITHOUT A MARKED TANG

Among various points found in Małopolska and Volhynia, in the literature referred to as daggers, khanjars, javelins, spearheads or projectile points, shaped using low-angle surface retouch, two basic subtypes have been distinguished: (1) one without a marked tang – with its edge close to the distal end (AA) or considerably broadened (AB); (2) one with a marked tang (BA and BB) – rectangular, trapezoid or triangular [Libera 2001: 25-27]. In both subtypes, points are mostly triangular or leaf-shaped, only in single cases do they end in a semicircle (this does not apply to repairs or alterations). Their sizes are also comparable: for subtype 1, they range from 85 to 240 mm in length and 25 to 50 mm in width while for subtype 2, they range from 65 to 250 mm and 25 to 70 mm, respectively.

Carried out in recent years, the studies of morphological varieties of points found in the borderland between Poland and Ukraine, succeeded in attributing only some forms to specific cultural units. This is particularly true for the specimens with marked tangs (regardless of the degree of their distinctiveness) that were associated with the horizon of pottery-free graves, holding flexed burials. The time the specimens functioned was set, on the strength of radiocarbon dates, at the second quarter of the 18th century BC [Bargieł, Libera 1997a: 153; 2005b; Libera 2001: 78-79]. The way corpses were arranged and other non-ceramic goods found in such graves show that they can reasonably be associated with the early settlement horizon of the Mierzanowice culture. In Małopolska, these are dated features containing points (Czerniczyn, grave III and XI) and others without any 'projectile points' (Szpikołosy Kolonia and Świerszczów Kolonia, site 28) – [Bargieł, Libera 2005b]. The area they are found in Poland stretches as far as the Sieradz Land [Eufemia, Zagórzyce – Bargieł, Libera 2006] and covers also Volhynia [Lysche, Ostrozhets, Rusyliv, Torchyn: grave 2 and 10, Vyriv, Zdovbytsia: grave I, Zolochiv: grave 2 – Bargieł, Libera 2005b]. Found in these graves, symmetrical artefacts with marked

tangs were called Czerniczyn-Torchyn type points [Bargieł, Libera 1997a: 153; 2005b: 15; Libera 2001: 80, 127].

Recently held analyses have shown that Czerniczyn-Torchyn type points should rather exclude specimens with characteristically formed proximal edges of tangs. The latter are clearly broader: thick with a semicircular ending, resembling a 'knob', or flat with an arched ending. As stray finds, they occurred in eastern Poland and Volhynia. In terms of morphology, they closely resemble copper or bronze daggers with a full handle, also ones ending in a metal or organic ferrule, and appear to be their faithful imitation. The metal models of those flint points should be looked for in the East Carpathian and/or Pontic metallurgic centres, for instance those connected to the Trzciniec-Komarov milieu. However, the closest analogies are supplied by the metal daggers of the Srubnaya and Sabatinovka cultures, in particular the finds of the Krasnyi Mayak type. In sum, flint daggers with a marked, thickened or flat tang with a rounded proximal edge, encountered along today's Polish-Ukrainian border, may have been manufactured to satisfy a demand from the autochthonous populations of the Trzciniec culture, who had settled the area since ca. the 18th century BC [Libera and Taras, in this volume]. What remains an open question is the location of manufacturing centres, their manufactures and the routes the daggers took to arrive in the area under discussion.

The problem of dating points without a marked tang is of a different nature. Single medium-sized points (about 70-110 mm long and almost 30 mm wide) with their proximal edge resembling a tip or with a marked edge – their contours being ovaloid, pentagonal and, possibly, leaf-shaped – have been discovered on the ground surface and in single graves at Strzyżów culture cemeteries in Raciborowice-Kolonia [Bargieł, Libera 2005a: 199; Bargieł 2006a: 80-81] and Horodysko, Chełm District (unpublished materials, processed by Jerzy Libera). Attempts to associate other point forms with Strzyżów culture settlement have not been substantiated so far [Bargieł, Libera 2005a; 2005b]. As much as a cursory comparison of the shapes and sizes of ovaloid, pentagonal (and leaf-shaped) specimens brings to mind similar artefacts found among the grave goods of the Middle Dnieper culture [Artemenko 1967: Fig. 30:24-27; 57:13, 14; 59:27], but also those of the Yamnaya, Catacomb and Babyno cultures [Klochko 2001, Fig. 29:1, 4, 9; 33: 2, 3, 5, 6; Razumov 2011: Fig. 26:2, 5, 6; 27:4, 7; 28:6; 29:2]. These associations clearly show the direction whence their inspirations came or what direct connections they had. In spite of the fact that in the late 26th and early 25th centuries BC, groups of humans who buried their dead at the edges of existing barrows and used vessels displaying the characteristics of the Middle Dnieper culture – as exemplified by assemblages of CWC categories C and D distinguished in this area – occupied Grzęda Sokalska [Machnik, Bagińska, Koman 2009: 259], no artefacts that could be interpreted as any type of points were recovered [Libera 2009: 286-288].

No cultural attribution was possible in respect of a group of leaf-shaped, relatively stocky points (80-180 mm long and 25-50 mm wide), with proximal edge

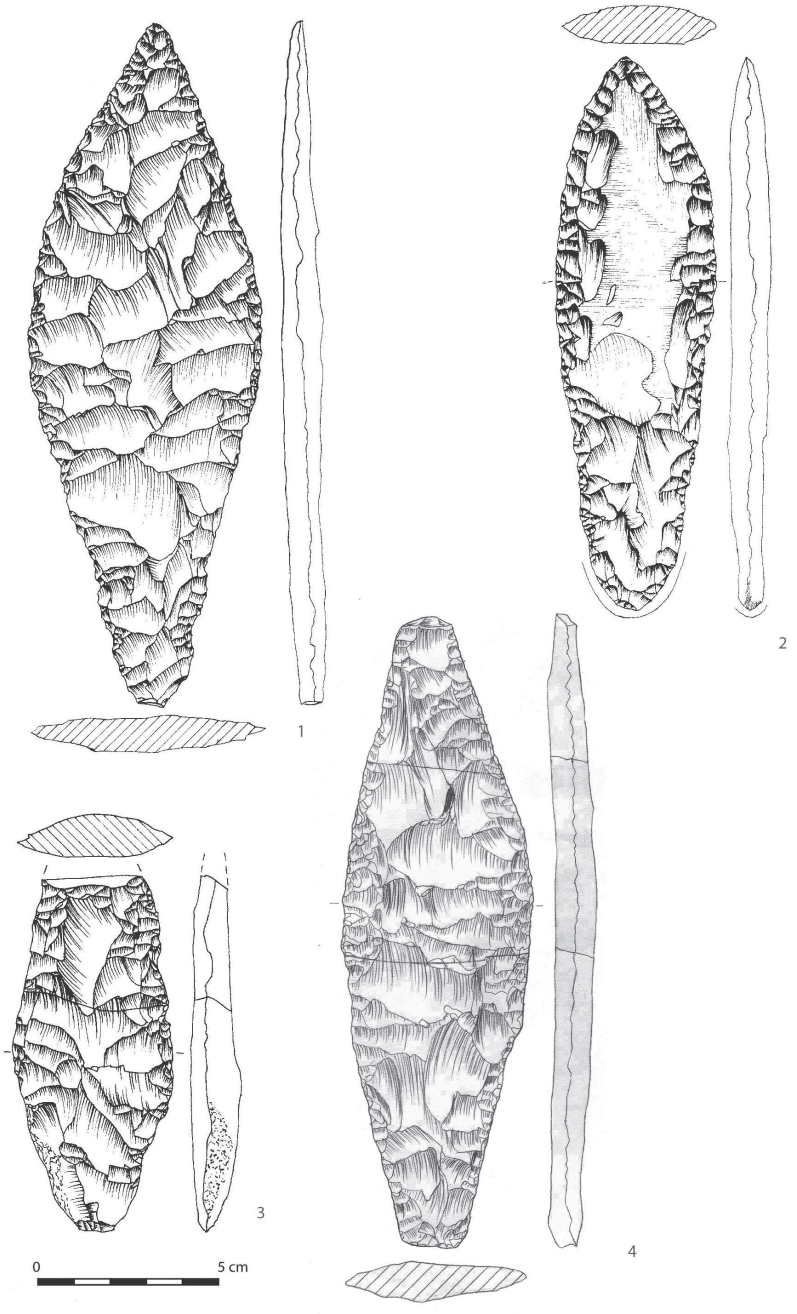

Fig. 1. Leaf-shaped points: 1 – Hrebenne; 2 – Obsza; 3 – Krzemień; 4 – Grabowiec (vicinity) [*after* Libera 2001 /1-3/, Panek 2013 /4/]

contours resembling a tip but slightly broadened and thickened with straight or arched ends (varieties AA and AB). Their similarity to variety BA, i.e. one with a not-fully-marked tang (one of the varieties of Czerniczyn-Torchyn-type points), has not been confirmed so far by reliable grave assemblages. Arguments in favour of associating single similarly-shaped slender points with the Trzciniec populations are not very strong. A proof of their use by 'Trzciniec' populations is supposedly a 'javelin head', cited recurrently in the literature, coming from barrow 6 in Łubna (properly Łubna-Jakusy), Sieradz District [Gardawski 1951: 15, Fig. 42d]. This misshapen leaf-shaped point, medium sized (about 126 mm long), made probably by knapping a blade (surface retouched on one side?), with a straight proximal edge (truncated or broken off?) because of the manner it was made seems to indicate that this may be an incomplete specimen (certainly an untypical one). Nevertheless, in Aleksander Gardawski's opinion this 'projectile point' was considered "the most representative form of 'Trzciniec' flint working in our (from Łubna – JL, AZ) graves" [1951: 57]. Also, an unclear stratigraphic position is held by a slender leaf-shaped specimen without a marked proximal edge recovered from barrow 1 in Maydan-Lypne, Volhynia Oblast [Berezanska, Okhrimenko, Piasetskiy 1987: 53, 57]. In neither case can we exclude imitation or re-utilization, a phenomenon so common among Bronze Age communities. We may well have a similar phenomenon in the case of other finds from 'Trzciniec' barrow mounds. From the surface of barrow XIX in Guciów, Zamość District, a tanged specimen with a triangular distal end was recovered [Rogozińska-Goszczyńska 1965: Fig. 1d], being a classic Czerniczyn-Torchyn-type point. Perhaps this is a similar 'projectile point' in the case of a specimen having the contour of a very elongated isosceles triangle, found in barrow 24 in Tyszowce, Tomaszów Lubelski District [Kuśnierz 1987: Fig. 2c]. It seems that it may have been a specimen with a triangular blade whose tang has been broken off.

A similar case in point concerns the use of points by Lusatian culture populations. The list of such finds is opened by a bifacial leaf-shaped point with a straight proximal edge (AB) recovered from an urn discovered in grave 864 at a cemetery in Laski, Kępno District [Kobusiewicz 1988: Fig. 13c], dated to the 4th period of the Bronze Age and the early Hallstatt period. Also 'Lusatian' sites from eastern Małopolska have yielded medium-sized stout points. In addition, a leaf-shaped specimen with a missing proximal edge was found at an urn cemetery in Siedliszcze, Chełm District [Dąbrowski 2006; Libera 2006: Fig. 4:2]. In similar circumstances, an unusually asymmetrical 'tanged' specimen was recovered in Pysznica, Stalowa Wola District [Mitura 2001: Tab. XL6], while a more regular artefact is noted from a settlement feature in Zagroda, Chełm District [Gołub 1996: Fig. 1:2]. This short review of finds made in the context of 'Late Lusatian' pottery must be supplemented by two leaf-shaped preforms found on a workshop site in Kopiec, Kraśnik District, where crescentic, sickle-shaped knives were manufactured from Świeciechów and Gościeradów kinds of flint [Florek, Libera 1994: Fig. 3c].

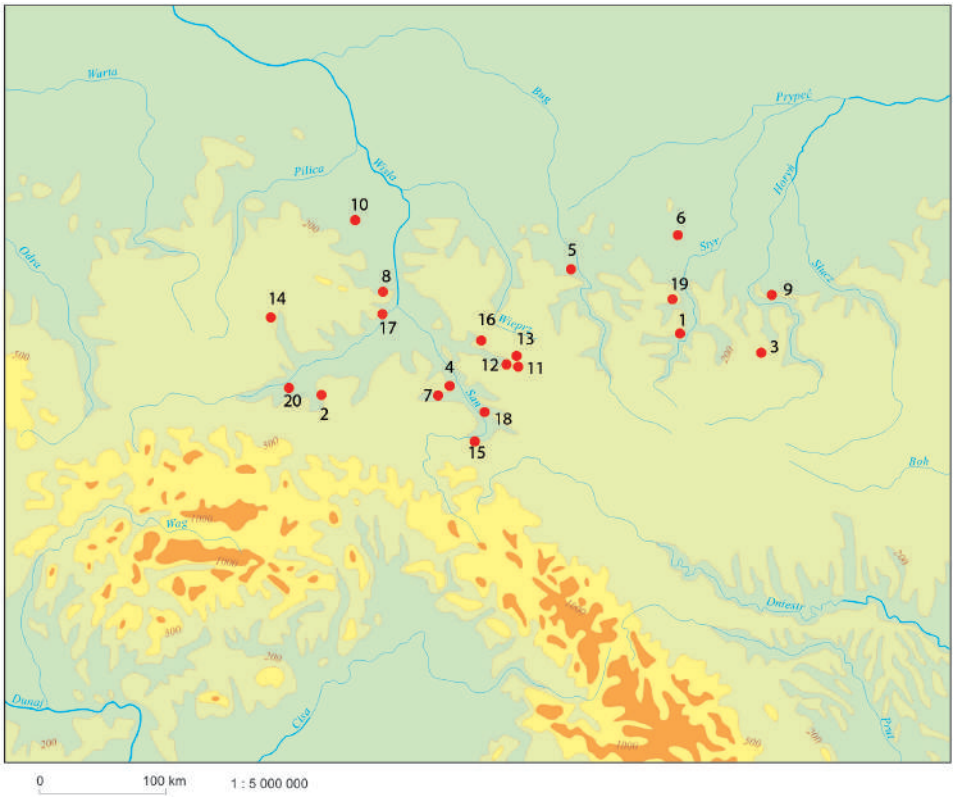

Fig. 2. Dispersal of leaf-shaped points with the blade close to the base: 1. Bakivtsi – Bakowce, Lutsk Region, Volhynia Oblast; 2. Borowa, Tarnów District; 3. Derman-Dermań, Zdolbuniv Region, Rivne Oblast; 4. Gorliczna-Szewnia, Przeworsk District, Subcarpathian Prov.; 5. Hrebenne, Hrubieszów District, Lubelskie Prov.; 6. Hulivka – Hulewicze, Kovel Region, Volhynia Oblast; 7. Husów, Łańcut District, Subcarpathian Prov.; 8. Jasice, Opatów District; 9. Kamiana Hora – Kamienna Góra, (nonextant) Zdolbuniv Region, Rivne Oblast; 10. Kolonia Seredzice, Radom District, Mazovian Prov.; 11. Krowica, Lubaczów District, Subcarpathian Prov.; 12. Lubaczów, Lubaczów District, Subcarpathian Prov.; 13. Łówcza, Lubaczów District, Subcarpathian Prov.; 14. Młodzawy Duże, Pińczów District, Świętokrzyskie Prov.; 15. Nehrybka, Przemyśl District, Subcarpathian Prov.; 16. Obsza, Biłgoraj District, Lubelskie Prov.; 17. Sandomierz, Sandomierz District; 18. Sobiecin, Jarosław District, Subcarpathian Prov.; 19. Torchyn – Torczyn, Lutsk Region, Volhynia Oblast; 20. Zakrzów, Wieliczka District, Małopolskie Prov.

Leaf-shaped points of types IA-D in the classification of Ebbe Lomborg [1973] or types I and II according to Włodzimierz Wojciechowski [1976], dubbed Płonia-type projectile points by Kazimierz Siuchniński [1972: 155-156], are recorded on sites in Pomerania, Wielkopolska and Silesia [Wojciechowski 1976; Czebreszuk, Kozłowska-Skoczka 2008]. Without going into taxonomic attribution, their presence in the Oder River drainage basin and along the Baltic coast can be

viewed as the result of a north and/or west European impact [Kopacz 2001: 94-95]. The northern impact brought points made mainly of Senon flint from Jutland [Apel 2001: 298-300; 2008: 101, Fig. 2], while the western impact involves connections to the Bell Beaker culture on the Lower Rhine and in the British Isles. Their presence in western Poland is related to the period of 2350-2300 BC while the onset of their disuse reaches ca. 1950 BC [Czebreszuk 2001: 130; Czebreszuk, Kozłowska-Skoczka 2008: 41].

The AA- and AB-type points, of interest to us here, discovered along the Polish-Ukrainian border as stray finds (known from at least 20 sites), are made exclusively of Volhynia flint (Fig. 1). They are dispersed across both Volhynia, for instance in the regions of Zdolbuniv (Kamiana Hora), Kovel (Hulivka), Lutsk (Bakivtsi) and eastern Małopolska, in the vicinity of Hrubieszów (Hrebenne), Jarosław (Sobiecin), Łańcut (Husów), Przemyśl (Nehrybka) – [Libera 2001, catalogue, Maps 1-6; Libera 2010: 9] – Fig. 2. Macrolithic leaf-shaped points with a marked proximal edge (AB) occur also in destroyed graves in Ukraine – from Horodenka [Sulimirski 1968: Fig. 35:12] and Berestechko [Sveshnikov 1974: Fig. 39:13] – but their context is not completely clear. The former find may be associated with the settlement of Lusatian or Trzciniec cultures while the latter points to connections with the so-called Gródek-Zdołbica group/culture.

The absence of any thorough studies of 3rd- and 2nd-millennium flint working east of the Bug River makes it difficult to determine its origins, typological varieties, technology and distribution. The studies of sources conducted so far permit only very cautious conclusions. As far as Małopolska finds are concerned, their location, raw material as well as shapes and sizes of artefacts direct our search towards the forest zone and Black Sea steppes. It is certain that the time and place of the emergence of macrolithic 'projectile points' (of various shapes) are to be searched for in this vast area. It is not clear though whether the finds of medium-sized leaf-shaped points without tangs may be linked only to the Strzyżów culture (*see* comments above) or whether they have an intercultural dimension. The latter conclusion is supported by their dispersal [Libera 2001: catalogue + Map 1, 2, 4, 5], going far beyond the range charted for Strzyżów culture settlement in the west [Bargieł, Libera 2004: Fig. 7] – the vicinity of Radom (Kolonia Seredzice) – and in the south – the region of Jarosław (Sobiecin), Łańcut (Husów) and Przemyśl (Nehrybka). Furthermore, the group includes artefacts considerably exceeding in size (i.e. above 110 mm) 'Strzyżów' finds [Libera 2001, catalogue].

Wherefore, it is very likely that large leaf-shaped points without a marked tang encountered along the Polish-Ukrainian border mark the 'Vistula frontier' of the impact of 'Early Bronze' Pontic cultures. This would be yet another 'Pontic' element (Yamnaya, Catacomb or possibly Babyno) next to graves displaying 'Yamanya' or 'niche' characteristics [Włodarczak 2010; 2011: 223; Kločko, Kośko 2011: 266-269], shaft-hole axes made of non-silica rocks having affinities with the Inhul type [Kločko, Kośko 2011: 270-273], and conical-bottom pottery. The first find

of such pottery was made in Święte, Jarosław District [Kośko, Klochko, Olszewski 2012], another one involves a conical-bottom pot, preserved in fragments, found in barrow 2, Hubinek, Tomaszów Lubelski District [unpublished materials; Banasiewicz *et al.* 2012: 27-28]. In the context of 'eastern' imports, Halina Taras considers a metal dagger, coming probably from a grave discovered in Strzyżów, Hrubieszów District, and revealing clear links to the similar type-B arsenic-bronze goods of the Catacomb culture (*see* Taras in this volume for other examples of 'Pontic' influence).

In the context of the Pontic impact, an assemblage of goods coming from an alleged 'barrow grave' in Ostrówek, Lubartów District, provides food for thought. It includes a 'tablet for grinding paints', made probably of jadeite, a shaft-hole axe, the contour and profile of which resemble 'Inhul' artefacts of this kind, made of indeterminate raw material, a Volhynia flint bifacial axe and a small pentagonal point made of indeterminate raw material [Gajewski 1972]. On the strength of the last-mentioned artefact, in terms of shape and size pointing to connections with forms considered to be of the 'Strzyżów-type' [Bargieł, Libera 2004], the assemblage began to be associated with the Strzyżów culture [Bargieł, Libera 2004: 179; 2005a: 197; Bargieł 2006: 81]. Now, we are inclined to revise this cultural attribution and consider the possibility of connections with the circle of Pontic cultures.

In the late 4th and early 3rd millennia BC, with the rise of the Pit-Grave culture, a cultural unification took place in eastern Europe's steppe zone between the Urals and the lower Danube River. This was possible owing to the high mobility of steppe societies. In these circumstances, the social role of males must have grown in importance; they took on the roles of shepherds, hunters and warriors. This process may be reflected in the grave goods which were meant to emphasize the warrior-like character of the dead. They were given stone battle-axes and maces, arrows with projectile points, javelins with flint, copper or bronze points, as well as flint, copper or bronze daggers. In the 3rd millennium BC, on the Pontic-Caspian steppes, these structures were consolidated by the next wave of Catacomb Grave culture populations [Kempisty 1981: 99; Chochorowski 1999: 266-269; Kozłowski 1999: 182]. In the vast expanses of Europe, in particular on the Dnieper and Volga rivers, in the eastern Baltic coastland, and in the southern Carpathians and the Balkans, diverse projectile points and sickle-shaped knives should be regarded as the permanent weaponry of shepherds, hunters and warriors of those times. However, the exact provenance of these artefacts cannot be determined as yet.

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Jerzy Libera, Halina Taras

IMITATIONS OF EAST EUROPEAN BRONZE DAGGERS IN LUBLIN PROVINCE FLINT WORKING

Imitating or emulating ideas, behaviour patterns or products of human thought runs through the history of civilization. It is thus commonly encountered not only in material but also in spiritual and social cultures. Confronted with instances of these phenomena, any archaeologist is inevitably provoked to search for their sources. One of the major reasons for making copies is a rather common desire for prestige goods. Unsurprisingly, their 'fakes' made of less valuable material are available to those who cannot afford originals. This is a pattern observable in all ages. Valuable and rare materials have always been replaced by cheaper or more widely available ones. In the Eneolithic and Bronze Age, in some parts of Europe, e.g. in today's eastern Poland, Belarus or even in some parts of Ukraine, such valuable materials included non-ferrous metals. Bone was substituted for amber, copper or gold, which can be seen for instance in plaque-medallions in Eneolithic and Early Bronze cultures. Copper or bronze daggers, swords and projectile points, beginning with the Eneolithic and continuing until the Early Iron Age, have their flint copies, sometimes very accurate ones.

In the Early Bronze Age, in workshops located close to the flint-bearing areas of Volhynia and Podolia, new macrolithic, bifacially-worked goods began to be manufactured. One type of such goods comprised points in the professional literature referred to as projectile points, daggers, khanjars or spearheads. They had slender or slightly stout, leaf-shaped or triangular blades and variously shaped proximal parts, resembling blades of metal daggers or having the form of a more or less distinct tang of various shapes. They originate from the east in broad terms,no doubt, but a more precise location is hard to determine. An analysis of dispersal of their varieties reveals that they occurred in several zones. The present authors' attention concentrates on eastern Europe, where the following zones have been distinguished: Volhynia-Małopolska (Volhynia, Podolia, Małopolska, Mazovia and Polesia), Dnieper-Volga (areas between the lower and middle Dnieper and Volga

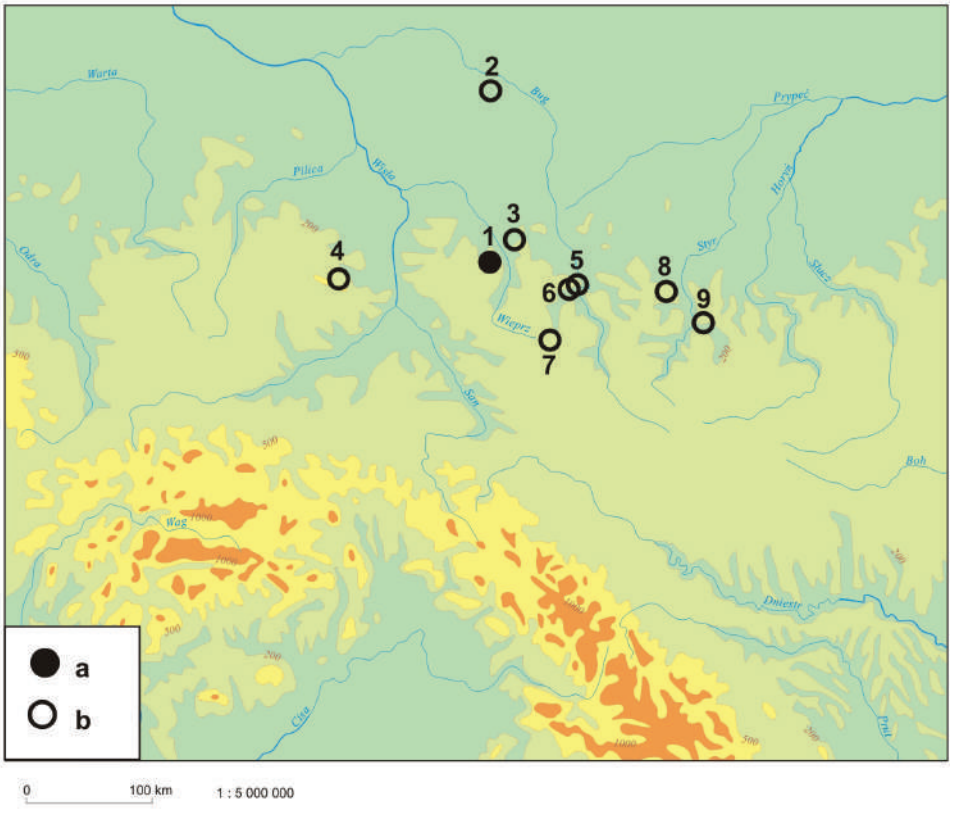

Fig. 1. Location of points with a marked tang of a rounded proximal edge (a – points with a thickened tang and pommel-like proximal edge); b – points with a rounded proximal edge of the tang of unknown thickness): 1 – Trawniki; 2 – Bordziłówka; 3 – Sewerynów; 4 – Słopiec; 5 – Szpikołosy; 6 – Wołajowice; 7 – unknown locality (possibly the vicinity of Tomaszów Lubelski); 8 – Horodok; 9 – Stavok (Vyhadanka). Map drawn by M. Juran

rivers) and east Baltic (covering Lithuania, Latvia, Estonia, southern Finland and the adjacent part of Russia, in particular the drainage basins of the upper Volga and Oka rivers) [Libera 2001: 103-106, Fig. 36]. Despite an overall unification of points, in each zone distinctive subtypes or varieties can be found, which not always, however, can be connected to a specific cultural unit.

The differences of some forms in the Volhynia-Małopolska zone allowed us to connect slender and stout tanged specimens with triangular or leaf-shaped blades and their counterparts with poorly marked tangs, known as Czerniczyn-Torchyn-type points, to the horizon of pottery-free graves holding flexed burials [Libera 2001: 127; Bargieł, Libera 2005: 16]. On the strength of ^{14}C dates obtained from a cemetery in Czerniczyn, Hrubieszów District, grave III (Ki 5035 –

3690±30 BP) and grave XI (Ki 5036 – 3720±30 BP), they were synchronized with the early phase of the Mierzanowice culture [Bargieł, Libera 1997a: 153; 2005; Libera 2001: 78-79]. Dated to the same time, other pottery-free burials from the Hrubieszów District, however lacking any points, were discovered in Szpikołosy Kolonia (Ki 8281 – 3740±70 BP) and Świerszczów Kolonia, site 28 (Ki 4191 – 3820±40 BP). All these features are located in the west of the Volhynia Upland where Igor K. Sveshnikov distinguished the Gródek-Zdołbica group/culture, which instigated the Bronze Age there [1974: 80-118; 1990]. A review of Volhynia pottery sources by Sławomir Kadrow and Jan Machnik [1997] resulted in the inclusion of most materials of the older (Gródek) phase of the 'Gródek-Zdołbica culture' in the Mierzanowice culture ('eastern' variety'), while part of the materials of the younger phase (Zdołbica) was included already in the Strzyżów culture [Kadrow, Machnik 1997: 50].

The origins of points manufactured in Volhynia workshops have not been thoroughly studied yet. What gives rise to much controversy is the taxonomic classification of the points, especially as almost 90 per cent of the specimens are stray finds or ones obtained from unreliable assemblages. Despite these doubts, it appears that the manufacturing of Czerniczyn-Torchyn-type points in all likelihood must be attributed to the 'Gródek' populations who, having direct access to the high-quality deposits of Volhynia flint, must have made such points [Bargieł, Libera 2005: 20]. In our opinion, the populations of the Strzyżów culture should be excluded as they used other points – tangless varieties [cf. Bargieł, Libera 2004].

This study concerns bifacial artefacts whose leaf-shaped blades resemble Czerniczyn-Torchyn-type points, but differ from them in the shape of tangs, specifically their proximal edges. They are at least twice as thick as blades, visibly broadened and end in a semicircle. This tang ending differs them from Scandinavian daggers. The latter are also broadened and their cross-sections are close to thick-lenticular or thick-oval, sometimes they are circular or rhomboid, while their endings are straight or arched. The tangs of Scandinavian daggers of types II-VI, according to Ebbe Lomborg's classification [1973: 44-63; Apel 2001: 235-248], many a time take the shape of a fishtail with a very clear 'seam' running along the longitudinal axis of the artefact on both sides. The range of the latter covers mainly the western Baltic Region and to a much lesser degree extends to the eastern Baltic Region.

The Lublin Province (also Volhynia) has yielded several artefacts pointing to connections with Czerniczyn-Torchyn-type points but having peculiarly shaped proximal parts. All the artefacts are stray finds and made of Volhynia flint. A unique find no doubt, an artefact from Trawniki, Świdnik District, on the middle Wieprz River, is a classic example of an artefact in which an apparently regular surface outline stands in stark contrast to a clumsily shaped tang. The specimen with a partially missing distal end is 133 mm long (probable original length could have been 155 mm), almost 40 mm wide at the maximum, and 8 mm thick. The maximum thickness of the tang is 17 mm while its width reaches 32 mm. It was

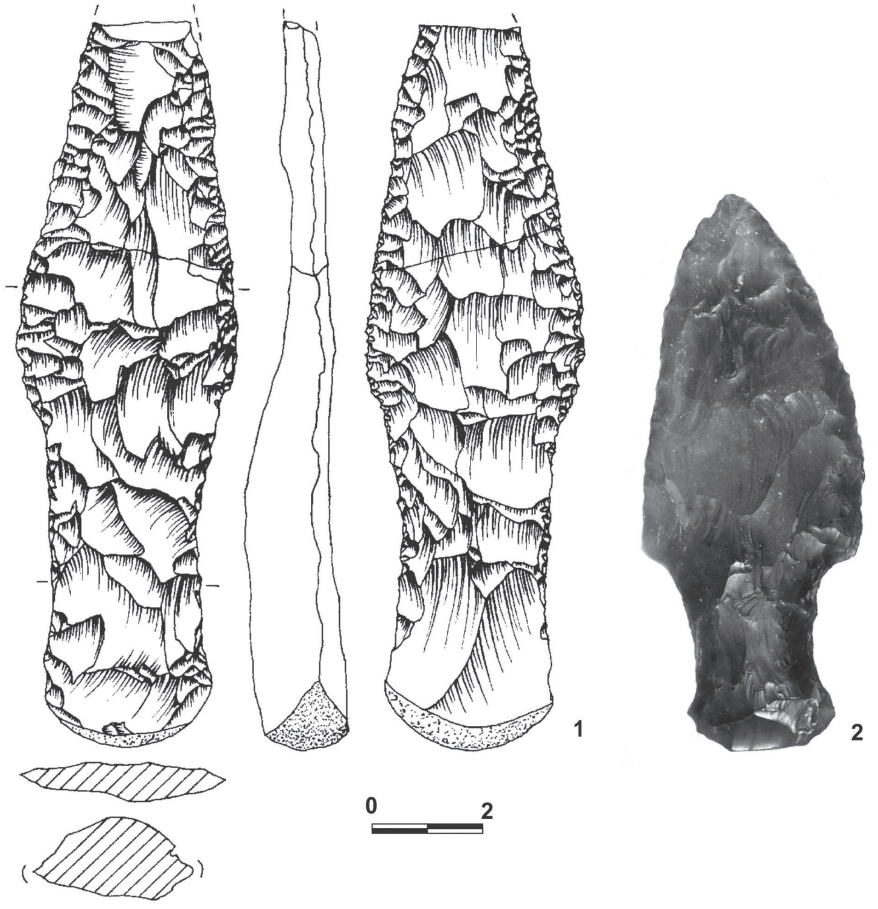

Fig. 2. Points with a marked tang. 1 – Trawniki [*after* Bargieł, Libera 1997b], 2 – Sewerynów (Archives, State Archaeological Museum in Warsaw)

fashioned bifacially, converting the cortex surface into the proximal edge of a relatively stout tang (Fig. 2:1).Unlike the regular lancet blade, constituting – especially on the frontal plane – slightly more than a half of the artefact length, the lateral contour is exceptionally asymmetric, which is particularly true for the thick dihedral tang [Bargieł, Libera 1997a: 263, Fig. 1a; Libera 2001: Tab. XXa].

Other specimens with leaf-shaped or triangular blades and similarly fashioned tangs ending in a semicircle (Fig. 1) differ from the Trawniki artefact in not only their size but also in the proportions of the blade to the handle. These are relatively small objects, 110-140 mm long, of which only ¼ to ⅓ is taken up by stout tangs with broad and rounded proximal edges. In several cases the differences concern also the shape of the handle which is almost as thick as the blade or even slight-

ly thicker. Such artefacts were discovered in the following localities: Wołajowice, Szpikołosy, Hrubieszów District [Gardawski, Rajewski 1956: Tab. XIV3; Niedźwiedź *et al.* 2010: Fig. 103:1], and an unknown locality probably in the vicinity of Tomaszów Lubelski Libera 2001: Tab.XXb]. They were also found in western Ukraine, in Horodok and Stavok (Vyhadanka), Lutsk Oblast [Klochko 2001b: Fig. 49:27, 56:14]. Further finds come from the following localities: Słopiec, Kielce District [unpublished, in the collections of the National Museum in Kielce], Sewerynów, Łęczna District [Głosik 1993: Fig. 30][1]; Bordziłówka (vicinity), Biała Podlaska District, (collections of the Museum of South Podlasie in Biała Podlaska), but in these cases information on their thickness is lacking (Fig. 2:2).

Perhaps related artefacts include also points with geometrically-shaped proximal edges, slightly broadened to form a trapezium, coming from Nakwasza-Watowskie, former Brody District [Ossowski 1886: Fig. 2], or others found in Zahirtsi, former Dubno District [Głosik 1962: Tab. XXXII3].

The discussed artefacts occur in eastern Poland and east of the Bug River (Fig. 1). They have not been catalogued yet; we wish here that they be noticed and systematically studied. Alas, the finds recovered so far are stray, which makes it hard to identify the cultural environment(s) in which they were made.

The manner the tangs of these points are shaped, in our opinion, clearly indicates that we are dealing with flint daggers. Neither the sources of their inspiration nor the locations they were manufactured at are known[2]. In a synthetic publication on points [Libera 2001, catalogue], all the macrolithic forms with a clearly marked tang and with a triangular or leaf-shaped blade were classified as subtype BB and next to subtype BA (except for a sub-variety with an ovaloid blade) were called the Czerniczyn-Torchyn-type points and identified as products of the early phase of the Mierzanowice culture (2200-2050 BC). Unquestionably, the general shape of the specimens justified their inclusion in the set of points of this type the more so that the artefacts from the cemeteries in Czerniczyn and Torchyn had their tangs variously fashioned [Libera 2001: Tab. VII-XIV]. The shape of the Trawniki dagger tang and of the tangs of other specimens mentioned above with a convex or rounded proximal part unavoidably brings to mind their metal counterparts – daggers with a solid metal or wooden handle and a convex base, ending in a meal 'pommel', which are alien to the circle of the Mierzanowice culture. Even allowing for the fact that some specimens are not very accurately made, in no other instance *issuch a discernable* asymmetry found in the group of classic Czerniczyn-Torchyn points, made entirely of Volhynia flint, with tangs always left thin but sometimes rounded at the proximal edge [for instance in grave XI in Czerniczyn – Koman 1985; for other examples see Bargieł, Libera 2005].

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[1] This artefact was allegedly found together with an almost pentagonal shaft-hole axe ("in the ground, close to one another, in one place"); perhaps the two objects form an 'assemblage'[Głosik 1993: 225].

[2] In the source publication, their provenance was given vaguely as "Russian Plain" [Bargieł, Libera 1997a: 267].

The morphology of some flint or stone artefacts bears a rather close resemblance to that of their copper or bronze counterparts. A good example of such relationships is offered by stone and copper (or arsenic bronze) shaft-hole axes with a drooping butt spread across Europe, albeit not uniformly, in various cultural environments. Originally coming from the Caucasus, they began to be manufactured locally in several regions of Europe, owing to their unusual popularity [Machnik 1987: 28-29, 158; Gedl 2004: 25-28; Klochko, Kośko 2009: 280-283]. Triangular, flat flint daggers (khanjars, 'projectile points') with marked tangs are present not only in the milieu of the Mierzanowice culture but also in the other cultures of the forest and forest-steppe zones of eastern Europe, including those of the corded circle (e.g. Middle Dnieper culture), and in steppe cultures, for instance the Yamnaya and Catacomb cultures [Klochko 2001b, Fig. 26:2-3, 29:3-5, 30:8, 11-14; Razumow 2011, Fig. 24:1-5, 27:1-3, 28:1-3].They are a relatively faithful imitation of Eneolithic and Early Bronze triangular copper or arsenic bronze daggers characteristic of the cultures of those time, beginning with the Caucasus-Anatolia and Balkan-Aegean zones, through the Pontic steppes, Danube drainage basin as far as Europe's western limits. They are popular, for instance, in the circle of Bell Beakers [*see* Kuna, Matoušek 1978] and less frequent in the forest-steppe and forest environments of central and eastern Europe. Such daggers must have been known also to the populations of the Mierzanowice culture [Machnik, Tkachuk 2003: 483-484], although they have not been recorded in grave assemblages yet.

For flint daggers with thickened tangs and a modelled 'pommel', the closest metal prototypes, although not exact ones, are found in East Carpathian and Pontic metallurgic centres, although they are also known from other regions. This idea is represented by goods from the Trzciniec-Komarov milieu e.g. in Ivanie, Rivne Oblast [Sveshnikov 1968: Fig. 4:10]. The closest analogies, however, are supplied by daggers from the Srubnaya and Sabatinovka cultures, especially finds of the Krasnyi Mayak type, e.g. from a barrow in Borisovka, Odessa Oblast [Shmagliy, Cherniakov 1970: Fig. 4; Dergachev 2002: Fig. 69:A422] or from hoards: Antonovka, Nikolayev Oblast [Symonovich 1966: Fig. 2:13; Dergachev 2002: Fig. 69:A420] and Lozova *vel* Lozovo, Străşeni *raión* [Dergachev 1975: 56; Klochko 2001b: Fig. 86:1-5].

Summing up, flint daggers with a marked thickened tang and rounded proximal edge identified in today's Polish-Ukrainian borderland were probably manufactured to meet the needs of a local Trzciniec culture community, which had settled the area since ca. 18th century BC. The conditions to imitate bronze daggers were created by both locally available Volhynia flint and macroscopically similar so-called Rejowiec flint, occurring in the vast area of the Chełm Hills in the eastern Lublin Province [Libera 2006a; Libera *et al.* 2014].

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Jan Machnik

TRANSFER OF IDEAS AND CULTURAL (TAXONOMIC) TRAITS BETWEEN THE VISTULA AND DNIEPER IN THE LATE NEOLITHIC. ARCHAEOLOGICAL EVIDENCE ON SUBCARPATHIAN PLATEAUS

1. INTRODUCTORY REMARKS

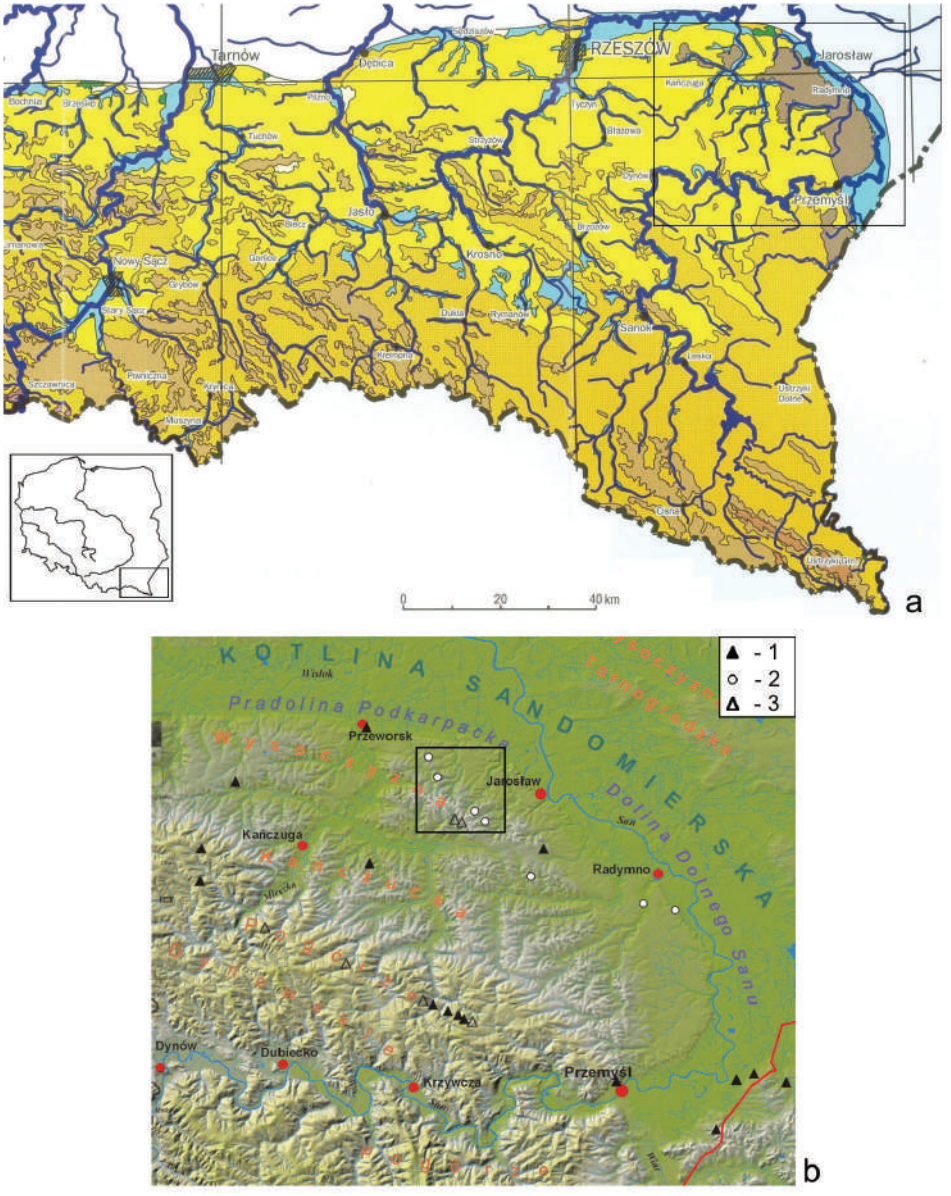
One of the most important objectives of any researcher of culture, including prehistorians, is to explain the mechanisms and flow (dissemination) directions of both grand ideas and those cultural traits which serve as the basis for distinguishing individual, sometimes even very small, units within archaeological cultural divisions. Whereas ideas, read from excavated sources and concerning chiefly albeit not only the so-called spiritual sphere (including funeral), cover as a rule large areas and may be common to many units of the cultural divisions, taxonomic traits, seen as principal markers of such units in the eyes of archaeologists, most likely served at the same time as signs (according to Bogatyriew's structural conception), differentiating between individual, even small human groups [Bogatyriew 1979].

Ideas, such as those of the megalithic tomb, barrow, a specific type of dwelling or an implement, spread no doubt in various ways in prehistoric times. One such way may have been diffusion processes but convergence also had a share in this respect. It is likely that in the same way some single taxonomic traits spread, such as certain ornamental motifs, artefact forms or technological methods. This is not true, however, for an entire 'package' of structurally related traits, forming grounds for distinguishing a given taxonomic unit within archaeological cultural divisions or some human group. The discovery by an archaeologist of such a 'package' (e.g. in grave goods) in a given place testifies to the presence in this place of people (or a person), identifying themselves with the traits included in the 'package' [Machnik, Bagińska, Koman 2009: 255]. Hence, the territorial expansion of a taxonomic unit, characterized by an entire 'trait package' [Machnik 2006], must be considered

as a reflection of the movement of groups of humans or individuals carrying with them (recorded in their memories) only the 'models' of the traits of such a 'package'. In the case of individual people, the evidence of their presence in a given place need not necessarily be the entire 'package' of traits but only one of its major components, containing, however, a complete set of 'internal' traits of such a component. For instance, in the case of pottery, these include both stylistic (form and ornament) and technological traits (composition of temper in clay, degree of firing and the character, i.e. the finishing of inner and outer surfaces). Of course, we have often to do with import only, especially of tools, ornaments and other goods made of durable materials. Such objects could spread in various ways. Only rarely does this concern Neolithic vessels which could not be transported over longer distances due to their technical characteristics. This is particularly true for those vessels which were deposited in Corded Ware culture (CWC) graves. These vessels more often that not did not bear any traces of prior use, which means they had been made for funeral purposes only.

Under certain circumstances, cultural taxonomic traits, being a marker of a given human group, could be imitated by its neighbours, sharing a different cultural tradition or representing a different unit of archaeological cultural divisions in any case. Such imitation could be an attempt to copy, often very accurately for that matter, many alien but for some reason attractive traits (as is the case with so-called novelties) or to emulate only some of such traits and variously combine them with one's own. The latter case is an example of cultural syncretism, a phenomenon commonly encountered in studying archaeological sources, including those originating with the period under discussion [Machnik, Bagińska, Koman 2009: 255].

The Late Neolithic and the Early Bronze Age (i.e. the 3rd and the first half of the 2nd millennia BC) over large expanses of Europe witnessed accelerated, frequently quite radical changes, including cultural ones, following largely from the transformations of agriculture, taking place already earlier, in the 4th millennium BC. These resulted in an increasing mobility of human groups, especially those deriving their subsistence mainly from the herding of cattle and small ruminants. With time, this form of subsistence must have become nomadic, semi-nomadic or seasonal pastoralism [Kruk 2009]. This certainly contributed towards the dissemination, much quicker than in previous periods, of both grand ideas (e.g. concerning the form of graves) and entire trait packages, developed within specific human groups and providing not only grounds for archaeological taxonomic divisions but also being real markers (identification signs), as mentioned earlier, distinguishing these groups from others. In the period straddling the Neolithic and the Bronze Age, another stimulus to the flow of all kinds of information (including, of course, cultural traits) came from the search for deposits of important raw materials, (for instance, flint deposits as flint was necessary to make all kinds of points), and especially copper deposits. Furthermore, information exchange was by the distribution of objects made of such materials not only by individuals who specialized in such



M a p 1. Map of soils in south-eastern Poland, according to Skiba *et al*. [2011]. The square box marks the area of the Kańczucka Plateau (a). A section of the hypsometric map of south-eastern Poland (b). The square box marks the area where Corded Ware culture necropoles were discovered in the vicinity of the villages of Szczytna, Jarosław District, and Mirocin, Przeworsk District. Legend: 1 – unexplored barrows, 2 – explored sites, 3 – explored settlement sites different ages

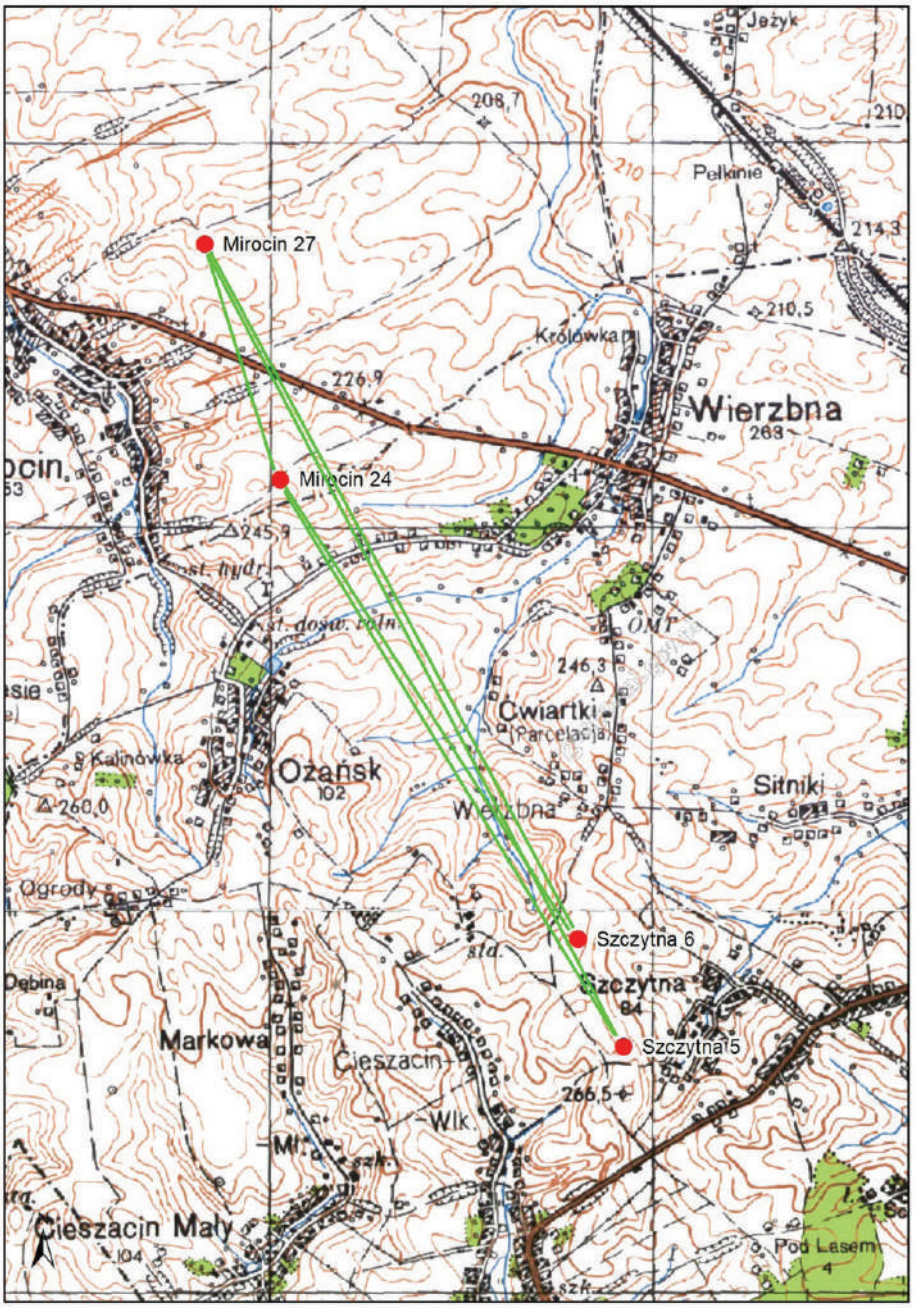
an activity but also by larger human groups (e.g. of the Funnel Beaker culture, FBC).

2. NEW SOURCES FOR THE STUDY OF THE TRANSFER OF IDEAS AND CULTURAL TRAITS

The phenomena and transformations mentioned earlier have attracted new in-depth research in recent years, owing to the results of large-area rescue excavations conducted along the section of the A4 motorway constructed between Przeworsk and Radymno, southeast Poland [Machnik 2011]. The motorway section cut across most of the southern edge of the Sandomierz Lowland, i.e. *a loess areas* known as the Kańczucka Plateau or Rzeszów Foothills (Map 1b) located in the left-bank drainage basin of the San River. This small fertile microregion, adjoining the Carpathian step (Dynowskie Foothills), is mostly covered by a patch of anthropogenic chernozem [Skiba *et al.* 2011: 28, Map 1a], supporting relics of steppe vegetation [Makohonienko 2011]. The excavations uncovered an exceptional collection of prehistoric and early medieval sites [*see* Czopek 2011], including cemeteries and single graves of CWC people from the period under discussion. Their comprehensive study has revealed, as we shall see, diverse traits that until then were associated with entirely different areas within the great CWC range. Interestingly enough, the traits, occurring together as grave goods in homogeneous closed assemblages ('packages'), in most cases come, as can be seen from substantial evidence, from a relatively short period of the given culture's lifetime. Certainly, they are reflections of some important social or cultural processes, taking place at that time and, thus, they are worth examining further.

The discussion, therefore, shall concentrate on the clusters of CWC graves, making up small cemeteries in the vicinities of the villages of Szczytna, Jarosław District, and Mirocin, Przeworsk District, on the Kańczucka Plateau (Map 2). A full scholarly monograph of the sites, co-authored *inter alia* by the present author, is almost ready to be published in a series devoted to the 'motorway' investigation project. Therefore, this paper shall present only the most important investigation results for the questions mentioned above.

The cemeteries were located relatively close to one another on the tops of local elevations (Map 2). The distance between two cemeteries located in the vicinity of Szczytna (motorway sites 5 and 6) was about 0.2 km, while those located close to Mirocin (motorway sites 24 and 27) were separated by 0.3 km. Furthermore, the shortest distance between the cemeteries close to Szczytna (site 6) and those next to Mirocin (site 24) was below 4 km (Map 2). Bearing in mind the topography of



Map 2. Topography of the Corded Ware culture population necropoles in the vicinity of the villages of Szczytna, Jarosław District, (sites 5 and 6) and Mirocin, Przeworsk District (sites 24 and 27) on the Kańczucka Plateau. The lines joining them indicate connections manifested by the occurrence of markers of the same grave assemblage categories (section of the map in scale 1:25000)

P h o t o 1. Szczytna, Jarosław District, site 6. Levelled by ploughing, a large Corded Ware culture barrow (no. 1), close to which a necropolis of this culture formed, is shown prior to (a) and in the course of (b) excavations. Photo by Hozer and Machnik

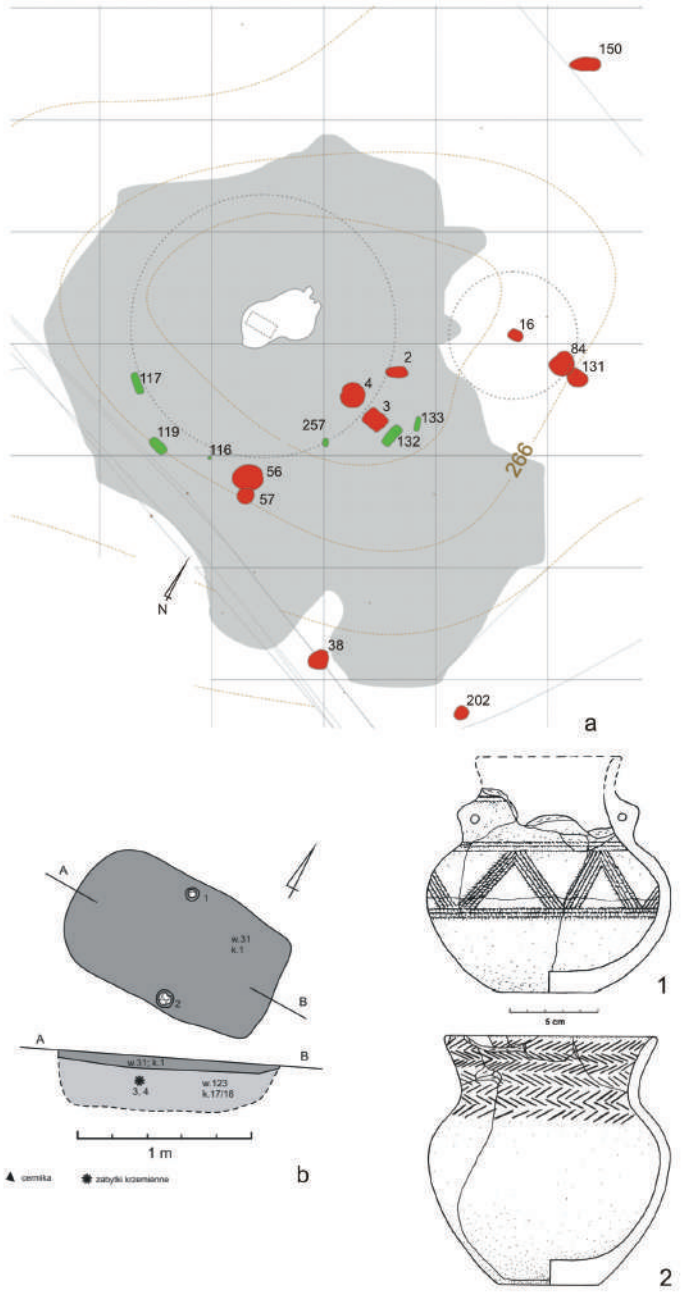


Fig. 1. Szczytna, Jarosław District, site 6: a – distribution of Corded Ware culture (red one) and Mierzanowice culture (green one) population graves close the large levelled barrow 1, b – horizontal projection and vertical cross-section of grave 16 (can be within another barrow) of the Corded Ware culture and its grave goods

the area, it cannot be ruled out that there are still uncovered clusters of CWC graves located somewhere between the two localities but outside the belt covered by the 'motorway' investigations.

The discovered cemeteries were located among the mounds of ancient barrows, levelled by ploughing, that also belonged to the CWC. This was certainly the case with site 6 in Szczytna where the remains of a large barrow mound (Photo 1) have still survived. The central grave of the barrow was damaged by a large robbing pit (Fig. 1a), the fill of which yielded shards of a clay amphora of an early type, which must have been among its grave goods. We can presume that barrow mounds once stood also on other sites mentioned earlier (site 5 in Szczytna and site 24 in Mirocin) because CWC niche graves there form a semicircle (they resemble the arrangement of such graves on site 6 in Szczytna) or a crescent, corresponding in all likelihood with the barrow outline (Fig. 1a). Hence, these graves are younger than the barrows standing on these sites, with a possible exception being the pit burial 16 (Fig. 1b), site 6 in Szczytna, which originally was covered by a small barrow. On its limit, there had been placed, as in other cases, a niche grave (grave 84; Fig. 1a) whose grave goods (Fig. 6:5) exhibit clearly younger traits than those found in grave 16.

3. CATEGORIES OF GRAVE ASSEMBLAGES

The grave goods found in the graves, for the most part niche ones, discovered on the above-named sites, are relatively numerous and varied in terms of artefact kinds. Besides vessels, often found in large numbers, flint artefacts, including axes, and bone and shell objects, there are also copper goods which include ones whose forms have not been encountered yet in published CWC materials (Fig. 6:2, 7). Hence, burials with a single vessel or two vessels are among the exceptions. So broad a spectrum of artefacts, including many vessels, with grave forms and funerary rites well defined, creates particularly favourable conditions for analyzing them from many aspects and against a broad comparative background. For this purpose, the assemblages of grave goods were divided into a number of categories according mainly to specific types of pottery, ones that are the most numerous and distinctive (in terms of form, ornamentation and technology).

One of such separate categories includes the only assemblage found in the cemeteries in question, consisting of two vessels representing the grave goods of grave 16, site 6, Szczytna, in all likelihood once covered by a barrow (Fig. 1b). One of the vessels (Fig. 1b2) is a beaker, bearing the motif of a horizontal, densely incised herringbone, typical mainly of the earlyCWC phase. Such beakers are en-

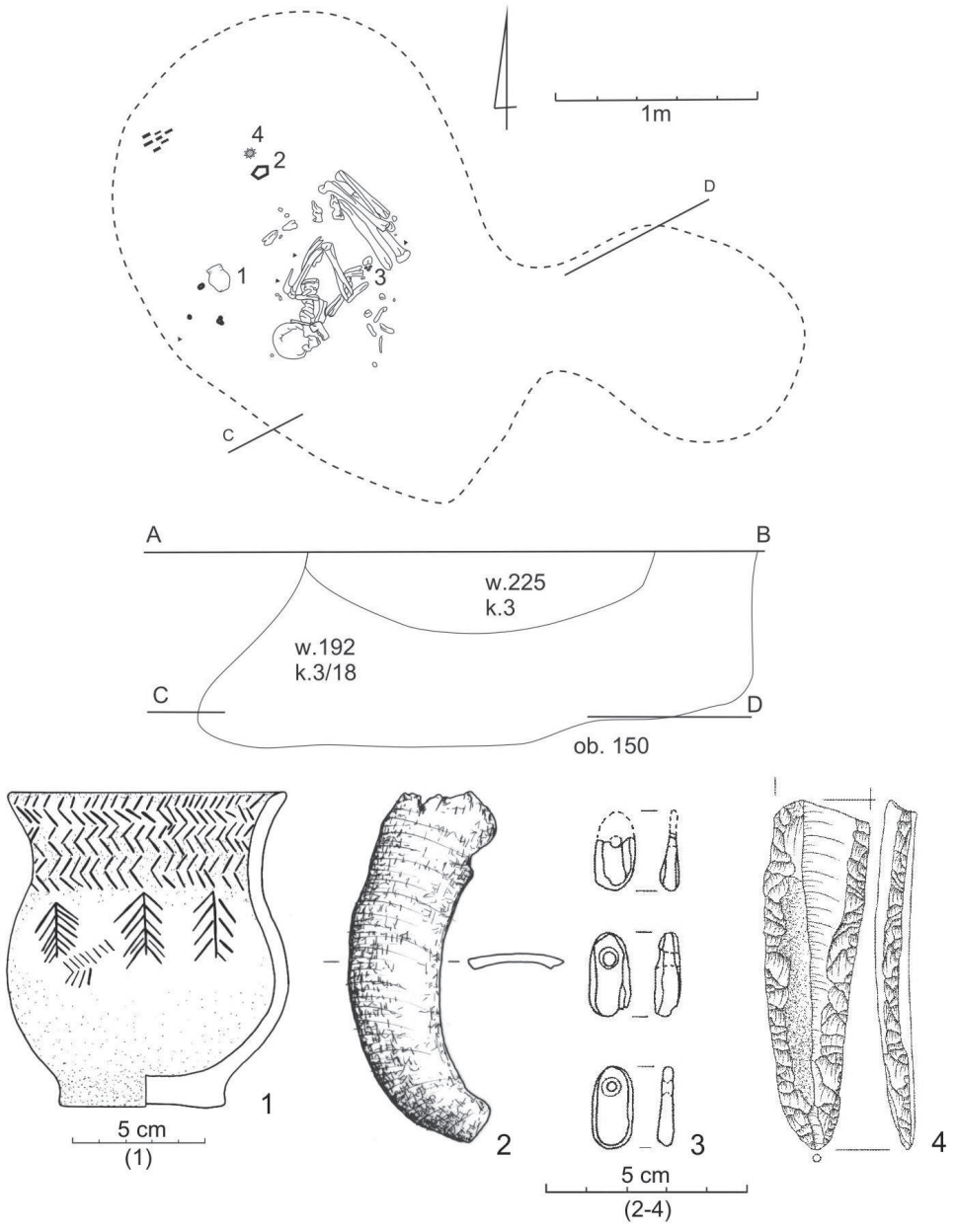


Fig. 2. Szczytna, Jarosław District, site 6: horizontal projection and cross-section of niche grave 150 of the Corded Ware culture and its grave goods

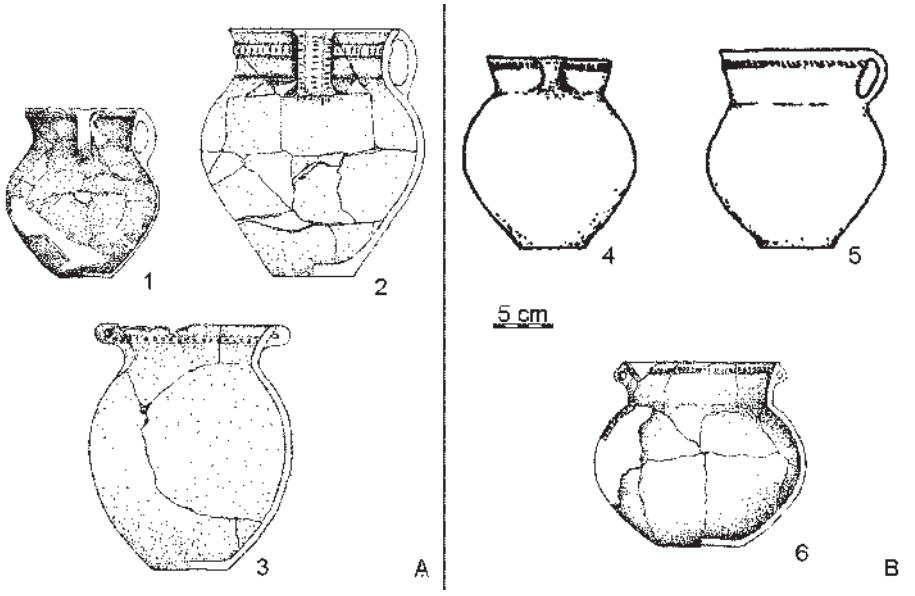


Fig. 3. Comparison of *Książnice Wielkie*-type jugs from Corded Ware culture graves: A – jugs on the Kańczucka Plateau: 1 – Mirocin, Przeworsk District, site 24, grave 54, 2 – Szczytna, Jarosław District, site 5, grave 220, 3 – grave 217; B – selected jugs from western Małopolska Upland: 4, 5 – Żerniki Górne, Busko Zdrój District, grave 40, 6 – Kryspinów, Kraków District. [*after* Machnik 2011]

countered across the vast CWC range and have close analogies in the area bounded by the upper Vistula, Bug and Dniester rivers. The other vessel, a small amphora with two elbow-like handles symmetrically placed at the base of a tall neck and with an almost globular belly, decorated with oblique bands of incised lines (Fig. 1b3) and short perpendicular ones [as on the vessels of the Funnel Beaker culture[1] – Jażdżewski 1936, Tab. XIX, 357, XXX 722], follows a convention resembling the ornaments of some vessels of the CWC older phase [Svešnikov 1974: 36, Fig. 5:5; Machnik, Pavliv, Petehyryč 2006b: 232, Fig. 3:1], but also those of the Tripolie culture. It is with the latter culture that the amphora appears to be even more strongly connected through its technology. It was made of well-washed clay uniformly fired, as in the Tripolie culture, leaving it orange coloured. This technology has not been encountered so far in the CWC, at least in well-known grave assemblages in the drainage basins of the upper Vistula and Dniester.

In another category, also represented in the cemeteries under discussion but by a single burial only, may be included the assemblage from grave 150, site 6, Szczytna (Fig. 2). In this case, however, it was a niche grave (Fig. 2) located some

[1] I rely in this respect on the opinion of Taras Tkachuk, an expert on Tripolie culture pottery, who saw the vessel in the District Museum in Rzeszów.

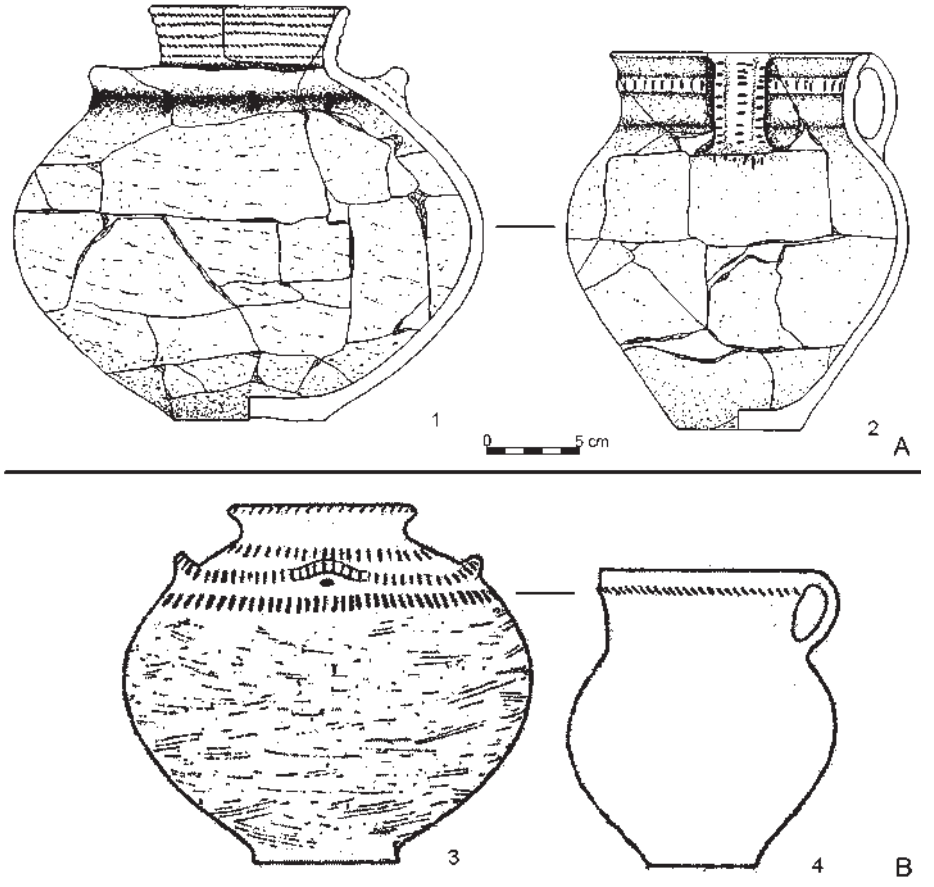


Fig. 4. Comparison of assemblages with *Książnice Wielkie*-type Corded Ware culture vessels co-occurring in a single grave assemblage. A – vessels on the Kańczucka Plateau: 1, 2 – Szczytna, Jarosław District, site 5, grave 220. B – Książnice Wielkie, Proszowice District, grave 1. [*after* Machnik 2011]

distance away from other graves on this site (Fig. 1a) and, possibly, placed on the edge of an older barrow, which might have once stood there. The distinctive marker of this assemblage is the only vessel found in this grave: a small S-profile beaker with a marked bottom edge forming a foot. It bears a horizontal ornament of a densely incised herringbone on the neck and a vertical one on the belly. The ornaments are symmetrically placed, single and short (Fig. 2b1). Beakers of this shape, representing a variety of type II according to the classification of Machnik [1966] and Włodarczak [2006], are common in the CWC, especially in its older chronological phases. Sometimes they bear ornaments on their bellies, as our specimen does, of single, symmetrically placed motifs of incised herringbone [Włodar-

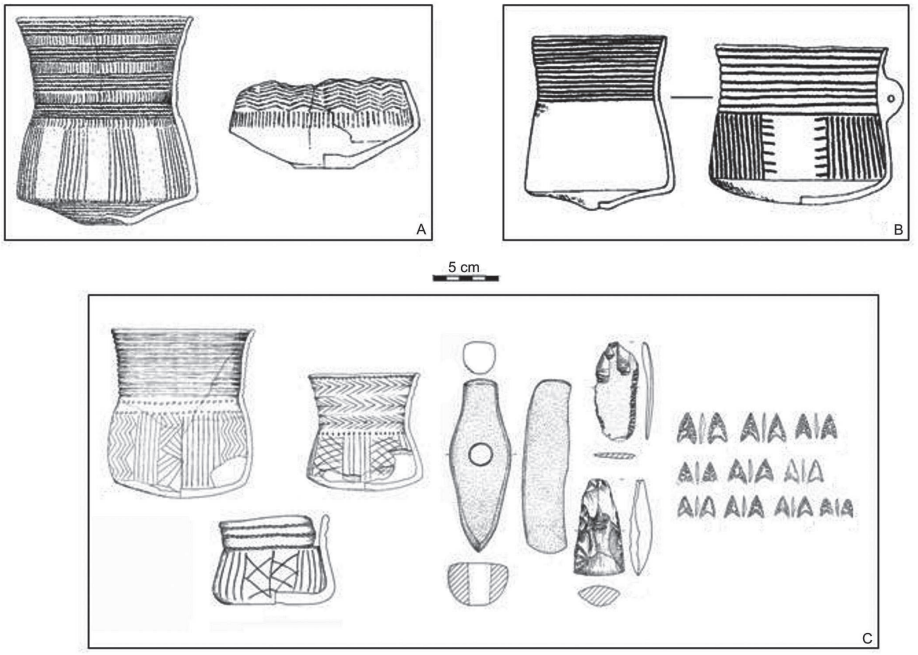


Fig. 5. Comparison of MDC-trait vessels in Corded Ware culture grave assemblages. A – vessels on the Kańczucka Plateau: 1 – Mirocin, Przeworsk District, site 24, grave 54, 2 – site 27, grave 360 [*after* Machnik *et al.* 2009]; B – vessels on Grzęda Sokalska: 1, 2 – Hubinek, Tomaszów Lubelski District, site 4, barrow I, grave 2; C – vessels from eastern Sandomierz Lowland, Młodów, near Lubaczów, Lubaczów District. [*after* Machnik, Pilch 1997]

czak 2006: 277, Tab. LV 9]. The other components (Fig. 2b:2-4) of the assemblage (oval bone pendants, a flint knife, a fragment of a wild boar tusk) are typical of CWC grave goods, including (or maybe above all) of its older phases.

Subsequent assemblage categories can be studied not on single examples of graves but on greater numbers of burials located on all four cemeteries covered by this study. Their principal markers often occur in combination with markers of other categories. Possibly the most typical category of the CWC cemeteries under discussion is represented by assemblages comprising a beaker with a tall, cylindrical neck whose slightly everted rim is decorated with horizontal bands of 'broad', densely incised herringbone. Its shoulder is high and strongly marked (Fig. 1b: 1, 3, 5). These beakers, the greatest number of which were found on site 6, Szczytna, although they occurred, as we shall see, on site 24, Mirocin, as well, were designated as the *Szczytna* type [Machnik, Bajda-Wesołowska, Hozer 2013]. As many as three such vessels had been placed in 'prince' niche grave no. 4 together with two other vessels (including a type II amphora with four handles joining two horizontal cordons at the base of the neck), other goods, including copper ones among which

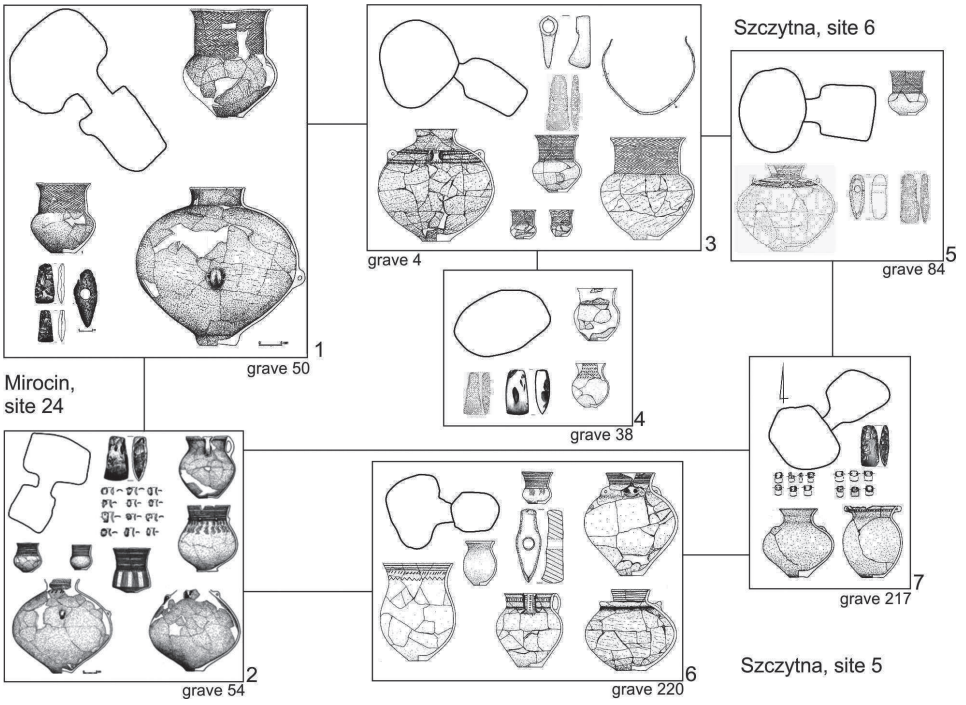


Fig. 6. Example of connections between grave assemblages with markers of various artefact categories on Corded Ware culture population necropoles in the vicinity of the village of Szczytna, Jarosław District, and Mirocin, Przeworsk District, on the Kańczucka Plateau

there was a shaft-hole axe (Fig. 6:3), pointing to connections with the older forms (*Corbasca* type) of Transylvania shaft-hole axes (Vulpe 1970, Fig. 3:42, 13). It is so far the only such artefact found in a closed CWC grave assemblage [Machnik 2011].

The next category is made up of assemblages distinctively marked by one of the following forms: a jug with a funnel-like neck and a single handle (Fig. 3:1, 2), a similar jug with two handles at the lip rim (Fig. 3:2) and an amphora with horn-shaped, symmetrically-placed, vertically-perforated projections – 'handles' – protruding from a horizontal cord impressioning the upper part of the vessel, below the base of a slender, funnel-shaped neck (Fig. 4:1, 6:5). Such forms have once been classified as the *Książnice Wielkie* vessel type [Machnik 1966: 38-41]. In the case of this assemblage category, registered also on the cemeteries in Szczytna (site 5 and site 6) and on one cemetery in Mirocin (site 24), its marker in the form of a vessel or vessels (Szczytna, site 5, grave 220) of the type named above, is accompanied among grave goods by other ceramic forms (for instance a *Szczytna*-type beaker as we shall see) and goods made of other materials such as copper. The latter include characteristic plates – perforated appliqué ornaments (Fig. 6:2, 7).

A special category is formed by two assemblages containing a beaker whose form, ornaments and, in one case, technology (Fig. 6:A1) clearly indicate connections to vessels characteristic of the Middle-Dnieper culture (MDC). The examples include an assemblage from grave 54, site 24, Mirocin, (Fig. 6) and an assemblage from a 'younger' burial in grave 360, site 27, in the same locality.[2] In in the former, a beaker displaying clear MDC traits was accompanied by six more vessels, including one belonging to the *Książnice Wielkie* type, and a number of goods made of other materials, such as copper plates – appliqué ornaments. In the latter assemblage, of the three vessels, as many as two clearly had affinities with MDC beakers (Fig. 6:A2). In addition, they were accompanied by other artefacts, for instance, a boat-shape stone axe.

The last assemblage category is represented by several graves, the goods of which include only vessels (both amphorae and beakers) common to the CWC, including also the area bounded by the Vistula, Bug and Dniester rivers. However, even among them a certain local as it were, trait can be noticed, namely the decoration of the upper portion (close to the neck base) of some beakers or slender amphorae with small knobs (Fig. 6:2, Map 4:i). A vessel with such knobs could be also considered a marker of another assemblage category.

4. CONNECTIONS BETWEEN ASSEMBLAGE CATEGORIES

Among most assemblages classified by us to particular categories there are certain connections in all four grave clusters – small necropoles. They involve not only a recurrence of the markers of the same category in many graves but also an occurrence of the markers of other categories (one, two or even three) in the assemblages of one category in specific cases. These connections are found in assemblages (i.e. among grave goods) within each cemetery and among them. Assemblages with a ceramic marker of a single category are few. One of them is the assemblage discussed earlier, found in grave 16, once likely covered by a barrow, and one in niche grave 150, site 6, Szczytna, and two other assemblages: one from pit grave 2 and the other from niche grave 56 on the same site. One more such assemblage comes from niche grave 363, site 27, Mirocin. The markers of particular categories from the other graves in the same assemblages, forming the grave goods of these graves.

Here are some examples of such co-occurrence of markers of particular categories in this type of assemblages. And so, on site 6, Szczytna, a characteristic

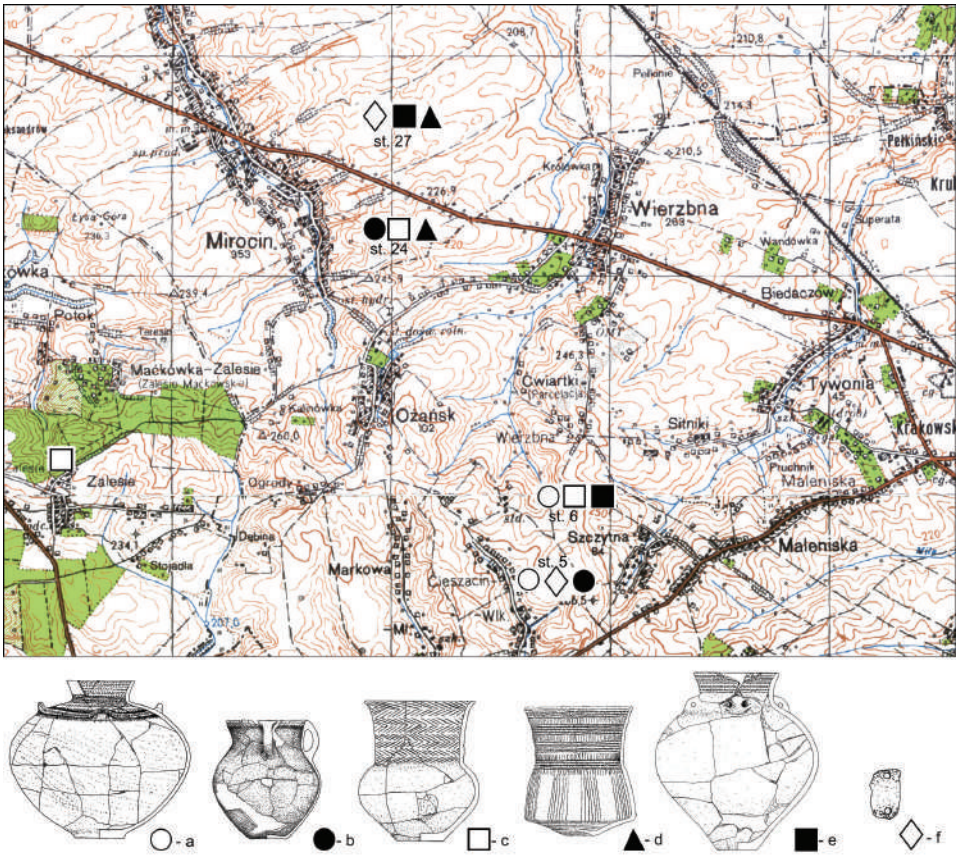
[2] In grave 360 on this site, two human burials were discovered that most likely had been placed in it in a certain chronological sequence. They are carefully studied in the forthcoming publication devoted to 'motorway' investigation results obtained on sites 24 and 27, Mirocin (*see* introductory remarks).

Szczytna-type beaker was deposited in niche grave 84 together with a *Książnice Wielkie*-type amphora (Fig. 6:5), while on site 5 in the same locality, a *Książnice Wielkie*-type jug, with two handles at the rim, edge was discovered in grave 217 together with an amphora, representing a category comprising vessels common in the CWC (especially in its earlier phases) and popular in the area bounded by the Vistula, Bug and Dniester rivers (Fig. 6:7). In similar 'company', as far as pottery is concerned, two *Książnice Wielkie*-type vessels were discovered in grave 220, site 5, Szczytna (Fig. 6:6): a jug and amphora, classical for this type. The amphora had vertically-perforated, horn-shaped projections, protruding from a horizontal cordon at the base of its neck. In turn, the same can be said about two classical beakers, this time of the *Szczytna*-type, found in the same grave 50, site 24, Mirocin, together with one of the interesting (because of the place of handles) varieties of type I CWC amphorae (Fig. 6:1).

A peculiar combination of markers of various assemblage categories was encountered in grave 54 on the same site in Mirocin. Apart from a classic *Książnice Wielkie*-type jug, amphorae similar to those in the previously named assemblage and beakers common to the CWC, we have in this case the marker of a familiar assemblage category (represented in grave 110, site, 24, Mirocin), comprising beakers with their upper parts bearing a characteristic ornament of knobs, and a beaker displaying MDC traits (Fig. 6:2). Thus, in a single grave assemblage, we encounter markers of almost all distinguished assemblage categories in the cemeteries under discussion, except for the category distinguished on the strength of its containing an amphora exhibiting traits of the Tripolie culture (grave 16, site 6, Szczytna).

Hence, it can be seen that among a vast majority of assemblages assigned to specific categories on the strength of a single marker – a characteristic vessel form – there hold connections manifested by the presence of at least one marker of another category and in various combinations for that matter. The connections are, so to speak, reinforced by the occurrence in such assemblages of the same kinds and types of objects, but made of different materials. Especially interesting is the presence in two grave assemblages (grave 54, site 24, Mirocin, and grave 360, site 27 in the same locality), containing a beaker displaying MDC traits and, in the case of the former grave, *Książnice Wielkie*-type vessels and a beaker ornamented with knobs at the neck base, of unique copper plates – appliqué ornaments with perforations for fastening (Fig. 6:2; Map 4:f). Such plates were part of the grave goods recovered from grave 217, site 5, Szczytna (Fig. 6:7), which held, as we already know, a *Książnice Wielkie*-type vessel, a marker of one assemblage category.

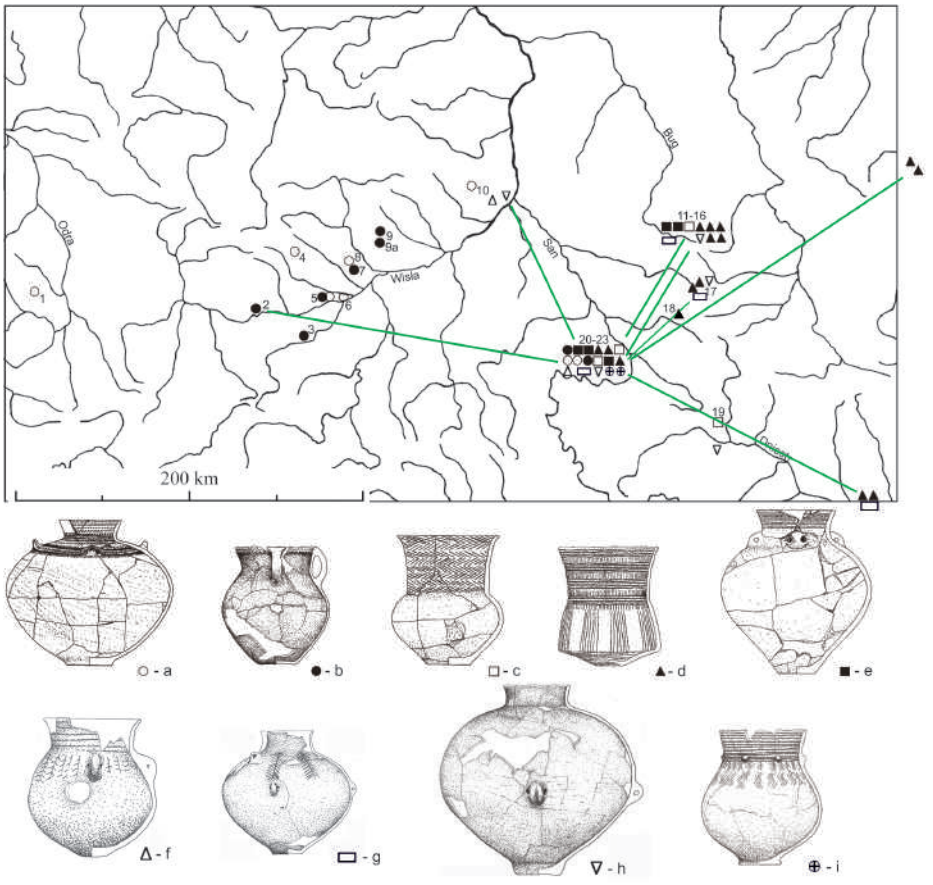
A vast majority of assemblages belonging to the categories discussed earlier (with the exception of the first marked by the presence of a vessel displaying Tripolie culture traits) are niche-grave goods recovered in principle from graves of one type a niche is adjoined by a rectangular pit, which is joined to the grave chamber by a small corridor (Fig. 6). A round, and not rectangular niche-adjoining pit was part of grave 220, site 5, Szczytna, which appears to have been used twice, and of



Map 3. The occurrence of vessels (a-f), markers of particular assemblage categories, and copper appliqué plates (f) in grave goods on the explored necropoles of Corded Ware culture people in the vicinity of the villages of Szczytna, Jarosław District, and Mirocin, Przeworsk District on the Kańczucka Plateau

grave 56, site 6, Szczytna, which lacked a corridor joining the grave chamber to the niche-adjoining pit. Moreover, a slightly different design from most niche graves was shared by grave 150, site 6, Szczytna, which contained a small beaker, bearing horizontal and vertical motifs of incised herringbone (Fig. 2a, b).

In most grave assemblages of individual categories, including those containing markers of more than one category, there occur the same types and their varieties of quadrilateral-section axes, as a rule quite large and made of the Świeciechów flint. They are sometimes accompanied (grave 220, site 5, Szczytna) by lenticular-section specimens made of Cretaceous flint, the so-called Volhynian, known also as Cretaceous or south-eastern [Balcer, Machnik, Sitek 2002]. The latter also occurs as the only artefacts of their kind in three other assemblages (graves 4 and



Map 4. The occurrence of vessels, markers of specific assemblage categories (a-i) in the grave goods of Corded Ware culture people, between the Oder, Vistula, Dniester and Dnieper rivers: 1 – Kietrz, Głubczyce District; 2 – Kryspinów, Kraków District; 3 – Dobczyce, Wieliczka District; 4 – Miechów, Miechów District; 5 – Książnice Wielkie, Proszowice District; 6 – Witów, Proszowice District; 7 – Sokolina, Proszowice District; 8 – Pełczyska, Proszowice District; 9 – Żerniki Górne, Busko-Zdrój District; 9a – Miernów, Busko-Zdrój District; 10 – Mierzanowice, Opatów District; 11-16 – Grzęda Sokalska (Hubinek, Łubcze, Machnówek, Nedeżów, Wierszczyca, Tomaszów Lubelski District); 17 – Roztocze (Łukawica, Brzezinki, Lubaczów District); 18 – Młodów, Lubaczów District; 19 – Berezets, Komarno District; 20-23 – Podgórze Rzeszowskie (Mirocin, Przeworsk District, sites 24 and 27, Szczytna, Jarosław District, sites 5 and 6)

16, site 6, Szczytna, and grave 217, site 5, Szczytna), representing at the same time three different assemblage categories.

As mentioned before, connections manifested by the occurrence and co-occurrence of markers of particular grave assemblage categories exist both within each grave cluster-necropolis (Fig. 6) and between them (Map 3). The connections exist

not only between the neighbouring cluster in the vicinity of Szczytna (sites 5 and 6) and around Mirocin (sites 24 and 27), but also between all four clusters named above. A good example of this is offered by two assemblages belonging to the same category, marked by *Szczytna*-type beakers, on site 6, Szczytna (graves 4 and 38, Fig. 6:3, 4) and grave 50, with the same kind of marker, on site 24, Mirocin (Fig. 6:1). The same is true for two assemblages from Szczytna (site 5, graves 217 and 220) and one from Mirocin (site 24, grave 54), containing *Książnice Wielkie*--type vessels (Fig. 6:2, 6). We have also mentioned small unique appliqué plates found in both Szczytna, site 5, grave 217, in an assemblage belonging to the category marked by a *Książnice Wielkie*-type vessel, and in Mirocin, site 24, grave 54, in an assemblage manifesting markers of as many as four categories. These are categories marked by a classic *Książnice Wielkie*-type jug, a beaker with knobs at the neck base, a beaker displaying MDC traits and, finally, four vessels common in the CWC (Fig. 6:2). In addition, they are also found on site 27, Mirocin, in an assemblage (grave 360) represented by the markers of the last two of the aforementioned categories.[3] It is worth mentioning that assemblages discovered on various sites (necropoles), but containing markers of the same categories, occur in niche graves of a similar shape, i.e. with a small corridor joining the niche-adjoining pit to the grave chamber. What is more, these markers on these sites are often accompanied by the same types of axes and other artefacts.

The connections between most grave assemblages discussed above, especially those manifested in the occurrence (or even co-occurrence in some of them), as markers of individual categories, of original pottery forms such as *Szczytna*-type beakers, *Książnice Wielkie*-type vessels (especially jugs), beakers displaying MDC traits, or even slender beakers with knobs at the neck base – not to mention unique copper appliqué plates- appear to point to the temporal proximity of these assemblages. This is substantiated to an extent by radiocarbon ^{14}C dates obtained for some of them. The dates fit into an interval of 2670-2470 BC, i.e. around the middle of the 3rd millennium BC. This chronology can be made more accurate by radiocarbon dating similar grave assemblages recovered from the necropoles under discussion.

5. CONCLUSIONS

Naturally, the most important aspects for a prehistorian of the observations of connections holding between the assemblages occurring on all the necropoles under discussion are cultural and social.

[3] Provided that a precise analysis of grave goods distribution in grave 360, site 27, shows its connection with the younger burial (*see* footnote 2).

There is no doubt that these connections mark a specific cultural community founded on some kind of human relationship and which aprove a particularly broad and varied range of traits, having, in many instances, a diagnostic or sign character (within the meaning of Bogatyriew's structural conception) for separate, not only but probably also those of the social character units taxonomic. To realize better the complexity of the question, it must be remembered that in the grave assemblages recovered from the sites (necropoles) in Szczytna and Mirocin, *Książnice Wielkie*--type vessels and beakers typical of the MDC co-occur in various combinations with vessels with strongly local traits, i.e. with *Szczytna*-type beakers. *Książnice Wielkie*-type vessels have been known so far exclusively from Małopolska western loess soils [Machnik 1966; Włodarczak 2006] while MDC beakers have been exposed relatively recently – for the first time in south-eastern Poland, in the right-bank San drainage basin – in Młodów, Lubaczów District, [Machnik, Pilch 1997] – and in the upper Bug drainage basin – on Grzęda Sokalska [Bagińska, Machnik 2001; Machnik, Bagińska, Koman 2009]. It must be stressed that the former, discovered in the discussed assemblages on the Kańczucka Plateau (in Szczytna and Mirocin), do not differ at all from the forms of this type known earlier from Książnice Wielkie, Proszowice District [Machnik 1966, Tab. IX:1a, b] or Żerniki Górne, Busko Zdrój District [Kempisty, Włodarczak 2000: 101, Fig. 66:1; Włodarczak 2006: 318, Tab. XCVII:6] on the Małopolska Upland (Fig. 3).[4] In both areas, they also occur in the following combination: a beaker and amphora with horn-shaped, vertically-perforated projections – handles (Fig. 4).

To an extent, the same can be said about MDC-trait beakers from Mirocin, especially about the vessel from grave 54, site 24 (Fig. 5), manufactured employing a similar technology as the original specimens of this culture from Młodów, Lubaczów District [Machnik, Pilch 2003: 248, Photo 1a, b].

Neither *Książnice Wielkie*-type vessels nor MDC-trait beakers could be, as most CWC vessels, transported over long distances.[5] In all probability, they were locally manufactured for strictly funeral purposes[6], keeping the ideas of shape, ornamentation and technology – as distinctive traits – proper to the human group to which pottery manufacturers belonged. By placing such vessels in a grave, they may have passed an identification mark to the deceased, necessary in the after world, indicating the deceased's membership in a given community or their closer connection to it. We touch here, therefore, upon important questions and very difficult ones at the same time – for how are we to explain the presence of such identification signs of not just one but two or even three or four different communities, albeit belonging to the same CWC circle, in a single closed assemblage

[4] Especially significant, the same technology is used to make this type of vessels, specifically their surfaces are burnished reminding one of the same treatment observable on some Funnel Beaker and Baden culture vessels.

[5] This was prevented by their brittleness versus their size. This question is discussed in greater detail in Machnik, Bagińska, Koman [2009: 255].

[6] For they do not show any traces of use such as abrasions on bottom edges.

representing after all the grave goods of a given deceased individual? The question may be put as what lies behind such cultural syncretism.

One matter would appear to be certain: we are faced here with some form of a rather peaceful coexistence of settlers who appeared on the Kańczucka Plateau roughly at the same time. They possibly drew their subsistence from stock raising, exploiting this fertile microregion that had been strongly transformed (deforested) by their agriculturalist predecessors, belonging to the Funnel Beaker culture.[7] When burying their dead, they would place appropriate identifying signs in graves (making use of the same niche form), forming small necropoles next to barrows already existing in the landscape currently settled. They marked their original community affiliation, their pedigree so to speak, by placing appropriate identification signs in graves, which could be easily expressed in ceramic vessels. It cannot be ruled out that the influx of Świeciechów-flint quadrilateral-section axes and lenticular-section ones made of south-eastern Cretaceous flint (according to Balcer) – this time no doubt mainly as imports – onto the Kańczucka Plateau from the Sandomierz Upland was related to the main directions of contacts and movements (possibly pastoral migrations) across Grzęda Sokalska, Roztocze and the vicinity of Lubaczów by CWC people in the eastern part (between the Vistula and Dnieper rivers) of the culture's huge range. The contact and movement directions were supplemented, bearing in mind the cultural situation on the Kańczucka Plateau (the presence of *Książnice Wielkie*-type vessels), by a route joining this microregion to the loess uplands close to Kraków (Map 4).

Further research, especially advanced biological studies (DNA, isotope examinations) of anthropological material found on the necropoles around Szczytna and Mirocin, as well as other CWC grave clusters investigated as part of 'motorway' research projects on Kańczucka Plateau (for instance in Skołoszów, Chłopice, Święte),[8] will, hopefully, allow us to draw more accurate conclusions, or more credible ones anyway, concerning the cultural and social questions discussed in this paper, specifically, the question of human relationships on the regional scale (reflected on the named necropoles) or possibly on a much broader one, encompassing also other areas between the Vistula and Dnieper.

Translated by Piotr T. Żebrowski

[7] Both in Szczytna and Mirocin, the remains of vast FBC settlements were discovered, too.

[8] The results of the research, passed to the General Directorate for National Roads and Motorways, will certainly be made available to scholars soon.

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FOURTH-THIRD MILLENNIUM BC STONE CIST GRAVES BETWEEN THE CARPATHIANS AND CRIMEA. AN OUTLINE OF ISSUES

1. INTRODUCTION

The idea of a grave having the form of a stone cist is not a trait which sets apart the period mentioned in the title or the lands stretching from the Carpathians to the Dnieper drainage basin and the Crimea. Quite on the contrary: this concept appeared and materialized on our continent in various periods and places. However, focusing on this special grave form in the chosen time and space context allows the present author to discuss the broader issue of ties between central and eastern European societies, and to relate to the debates in which archaeologists have been engaged for a number of years.

One might well ask what is a stone cist grave (*Steinkiste, кам'яний ящик, каменный ящик, ящичная гробница*). Its descriptions and definitions usually stress that it is a regularly rectangular feature whose walls are made of stone slabs stood on their edge [Beier 1983: 34; Adamik 2012: 12]. Other structural traits are of secondary importance. Thus, a cist may – but does not have to – have a stone floor and/or a cover slab (ceiling). Its walls may be formed by four slabs touching in the corners, but there may be, for instance, six slabs (two slabs along each longer side and one along each shorter side) or more if smaller slabs were used. There are cists with their inner space divided into two or more parts, but features with a single-space chamber dominate. A cist could be placed on the surface of the ground or in a pit dug for this purpose. It could be covered by a mound rising above the ground or be buried under levelled-off ground, etc.

Hence, a regular outline and building material in the form of stone slabs represent two diagnostic elements of the structure under discussion. Below, this narrowing definition shall be adhered to and discussion that follows shall ignore the

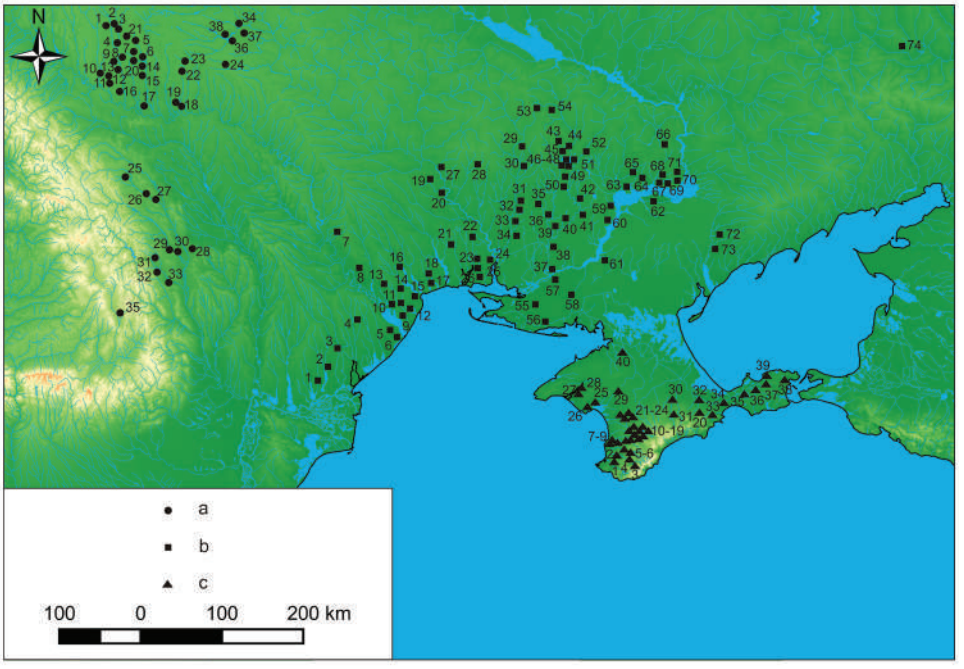

Fig. 1. Distribution of stone cist graves in the 4th and 3rd millennia BC in northern Black Sea areas. Based on maps of Szmyt [1999]; Burtănescu [2002b]; Teslenko [2002]; Rassamakin [2004]; Ivanova, Petrenko, Vetchinnikova [2005]; Toschev [2007]. Key: a – stone cist graves on the forest-steppe area (the Globular Amphora context); b – stone cist graves on the steppe area (Eneolithic and Yamnaya contexts); c – stone cist graves on Crimea (Kemi Oba context). List of sites in Table 1

many derivatives of the structure. They differ from the ideal form in the use of other building material (boulders or pebbles instead of slabs) or in departing from the regular outline.

By reason of their stone structure, cist graves are sometimes included among broadly understood 'megaliths', but in detailed classifications [e.g. Beier 1991] they are subsumed under submegalithic features, held to be distinct from both 'true' megaliths (*Grossdolmen*) and pseudomegaliths (*Mauergrab*).

Tracing the emergence of stone cist graves in the cultural landscape of the central and eastern Europe of the 4th and 3rd millennia BC, it is worth remembering that they are especially numerous in the north-western Caucasus [Trifonov 2013, here older literature]. North and northwest of the Carpathians, such features occur at that time in the cultures of the Late Neolithic, too, in the drainage basins of the Oder, Vistula and Elbe rivers and in Mecklenburg, e.g. in Walternienburg, Bernburg, and in the Globular Amphora culture (GAC). East of the Carpathians, stone cist graves continued to be built in successive millennia (2nd and 1st millennia BC)

Table 1

List of sites mapped in Fig. 1

No.	Site	No.	Site	No.	Site
	Forest-steppe	14	Baranovo	66	Shirokoe
1	Bavoriv-Zastavye	15	Zatoka	67	Nikopol
2	Tovstolug-Zastinka	16	Katarzhino	68	Kujbyshevo
3	Loshniv	17	Starye Beliary	69	MGOK
4	Dovhe	18	Bolshoj Adzhalyk	70	Verkhnetarasovka
5	Khorostkov	19	Pokrovka	71	Marjevka
6	Gorodnitsa-Vojevodintse	20	Novaja Odessa	72	Akkermen
7	Vorvulintsy	21	Stepovoe	73	Konstantinovka
8	Ulashkivtsy	22	Kovalevka	74	Petrovka
9	Yagolnitsa	23	Ivanovka		**Crimea**
10	Beremiany	24	Vesnianoe	1	Skelja (Rodnikovoe)
12	Koshylivtsy	25	Kamenka	2	Aziz-Oba
13	Slobidka Koshylovetska	26	Blagodatnoe	3	Tankovoe
14	Kotsiubintsy	27	Kasperovka	4	Turgenevka
15	Chornikintsy	28	Hovoshmidtovka	5	Pomologicheskij rassad. VIR
16	Khartonivtsy	29	Berezovka	6	Dolinnoe
17	Glibochok	30	Starorozanovka	7	Uglovoe
18	Velikaya Slobidka	31	Starorogozheno	8	m. Almoj i Kachej
19	Kolubayevka-Kozavshchina	32	Sokolovka	9	Vilino
20	Uvisla	33	Konstantinovka	10	Kojash (Vodnoe)
21	Luchka	34	Krasnopolje	11	Simferopolskoe vodokhr.
22	Zavadintsy	35	Vinogradnoe	12	Pionierskoe-95
23	Chornivody	36	Visunsk	13	Simferopolskij aeroport
24	Tartak	37	Lvovo	14	Abdal
25	Suceava-‘Spital’	38	Limantsy	15	Zolnoe
26	Basarabi – Preuteşti	39	Aleksandrovka	16	im. Cherkes
27	Dolcheştii Mari	40	Baratovka	17	Kalinovka (Kisek-Aratuk)
28	Scheia-‘Muncel’	41	Velikoaleksandrovka	18	st. Pochtovaja
29	Şerbeşti	42	Staroselje	19	Kazanki-58
30	Bargaoani	43	Mojseevka	20	Pervomajskoe
31	Piatra Neamţ	44	Krivoj Rog-‘Dolgaja mogila’	21	Krasnaja Zorka
32	Calu-Piatra Soimului	45	Latovka	22	Novo-Sofievka
33	Mastacan	46	Valovoe	23	im. Genkela
34	Novaja Siniava	47	Dolgintsevo	24	s. Krasnyj
35	Sanmartin-Ciuc	48	Vojkovo	25	pos. Kievskij
36	Letychev-Zavovk	49	Rakhmanovka	26	Ujutnoe
37	Lepesivka	50	Zelenyi Hay	27	Veselovka
38	Gorbasiv	51	Krivoj Rog-‘Tri bratja’	28	Natashino
	Steppe area	52	Andrusovka	29	Mamaj
1	Kubej	53	Korystivka	30	Gut Gott-Chotty
2	Kholmskoe	54	Aleksandrija	31	Kemi-Oba
3	Tatarbunary	55	Bursunka	32	Diatlovka
4	Sarata	56	Skadovsk	33	Beregovoe
5	Alkaliya	57	Sofievka	34	Primorskij
6	Zatoka	58	Chernjanka	35	Ilichevo-75
7	Krasnoe	59	Zolotaja Balka	36	Astanino
8	Novo-Kotovsk	60	Novokairy	37	Nizhnezamorsko
9	Sanzheyka	61	Liubimovka	38	Novoe
10	Velikodolonskoe	62	Balki	39	Artezjan
11	Beljaevka	63	Ordzhonikidze	40	Dolinka (Kurban-Bayram)
12	Efimovka	64	Shevchenkovskij karjer		
13	Velikoziminovo	65	Bogdanovskij karjer		

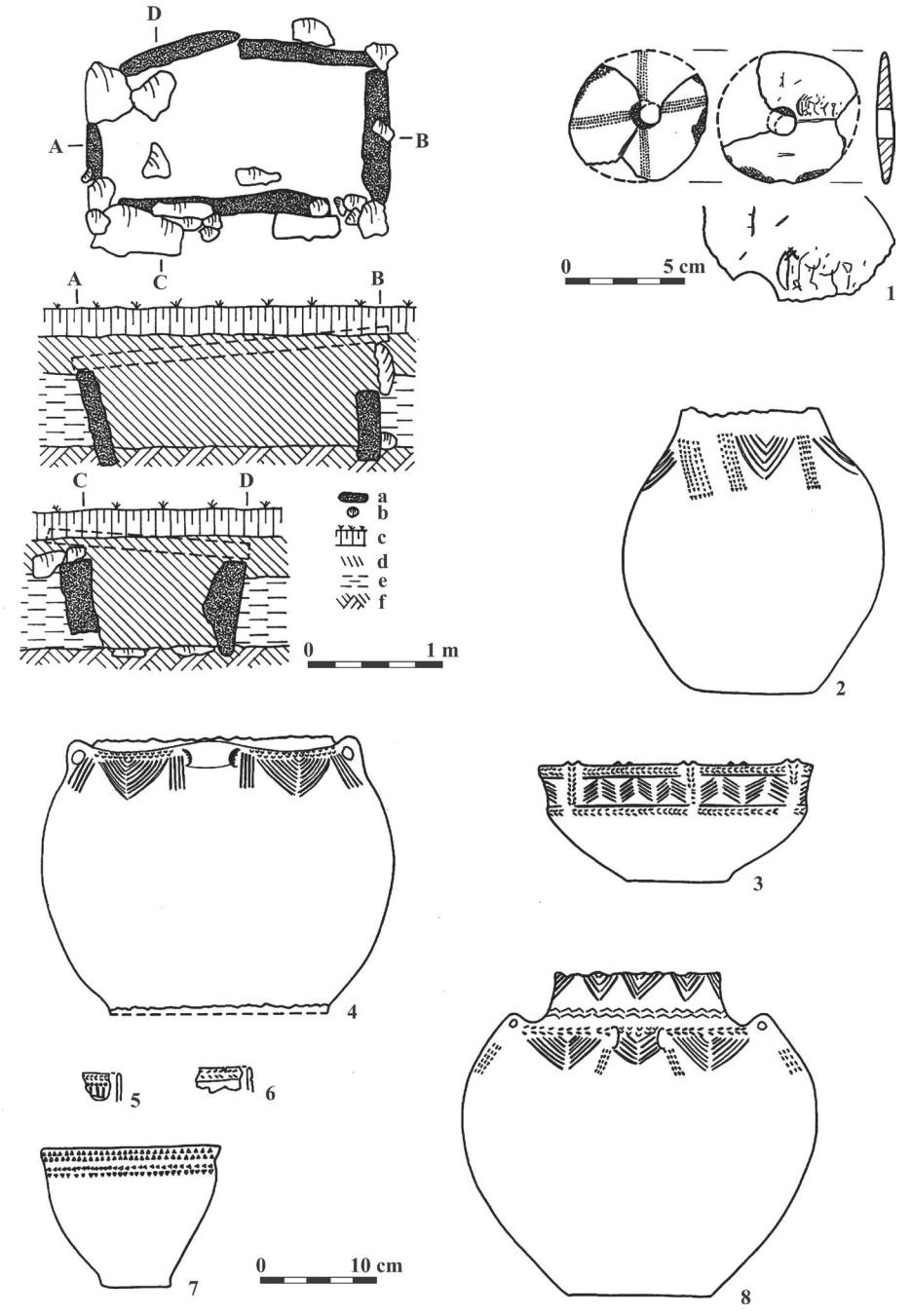

Fig. 2. Stone cist grave of the Globular Amphora culture, Volhynian sub-group: Ivanye. Plan and cross-sections of the grave and artefacts (1 – amber; 2-8 – clay). *Foll.* Sveshnikov [1983]; Szmyt [1999]. Key: a – slabs; b – stones; c – arable layer; d – chernozem; e – sandy clay; f – rock-bed

in such cultures as Strzyżów, Komarov, Monogavalikovaya, Srubnaya and Wysocka [Adamik 2012, see here for older literature].

2. DISTRIBUTION OF STONE CIST GRAVES BETWEEN THE CARPATHIANS AND CRIMEA IN THE 4TH AND 3RD MILLENNIA BC

Between the Carpathian and Crimea, stone cists, as a relatively easily recognizable grave form, have been described and documented since the late 19th century. However, due to the broad time bracket of their occurrence mentioned above (4th–1st millennium BC), only some of these features can be related to the 4th and 3rd millennia BC. Any study is made more difficult by the fact that a large number of graves, of which we have very little information, do not have a determined chronology. Nonetheless, owing to the work of many archaeologists, we have a set of data permitting a general description of the distribution of stone cist graves in the selected period of time. The attached map (Fig. 1) compiles all available data gathered from Moldavian, Polish, Romanian and Ukrainian publications [Dergachev 1986; Subbotin 1995; Szmyt 1999; Burtănescu 2002b; Teslenko 2002; Rassamakin 2004; Ivanova, Petrenko, Vetchinnikova 2005; Toschev 2007; Melnyk, Steblyna 2013].

Generally speaking, stone cist graves were recorded – beginning in the west – in Volhynia, Podolia, on the Moldavian Upland, in the Crimea and on Black Sea steppes. There are large concentrations of such features numbering from over a dozen to several dozen cists. They are found for instance between the Prut and Seret rivers, in central Podolia, in western and central Volhynia [Sveshnikov 1983; Szmyt 1999; Mihailescu-Bîrliba 2001; Burtănescu 2002b], northwest of the Black Sea – between the Danube and Dniester rivers [Subbotin 1995; Ivanova, Petrenko, Vetchinnikova 2005; Ivanova 2012], between the Inhul and Dnieper rivers [Teslenko 2002] and in Crimean foothills [Toschev 2007].

3. CULTURAL CONTEXTS OF STONE CIST GRAVES IN THE 4TH AND 3RD MILLENNIA BC BETWEEN THE CARPATHIANS AND CRIMEA

Between the eastern arch of the Carpathians, and the Dnieper and Crimea, 4th-3rd-millennium-BC stone cist graves are associated with several units of ar-

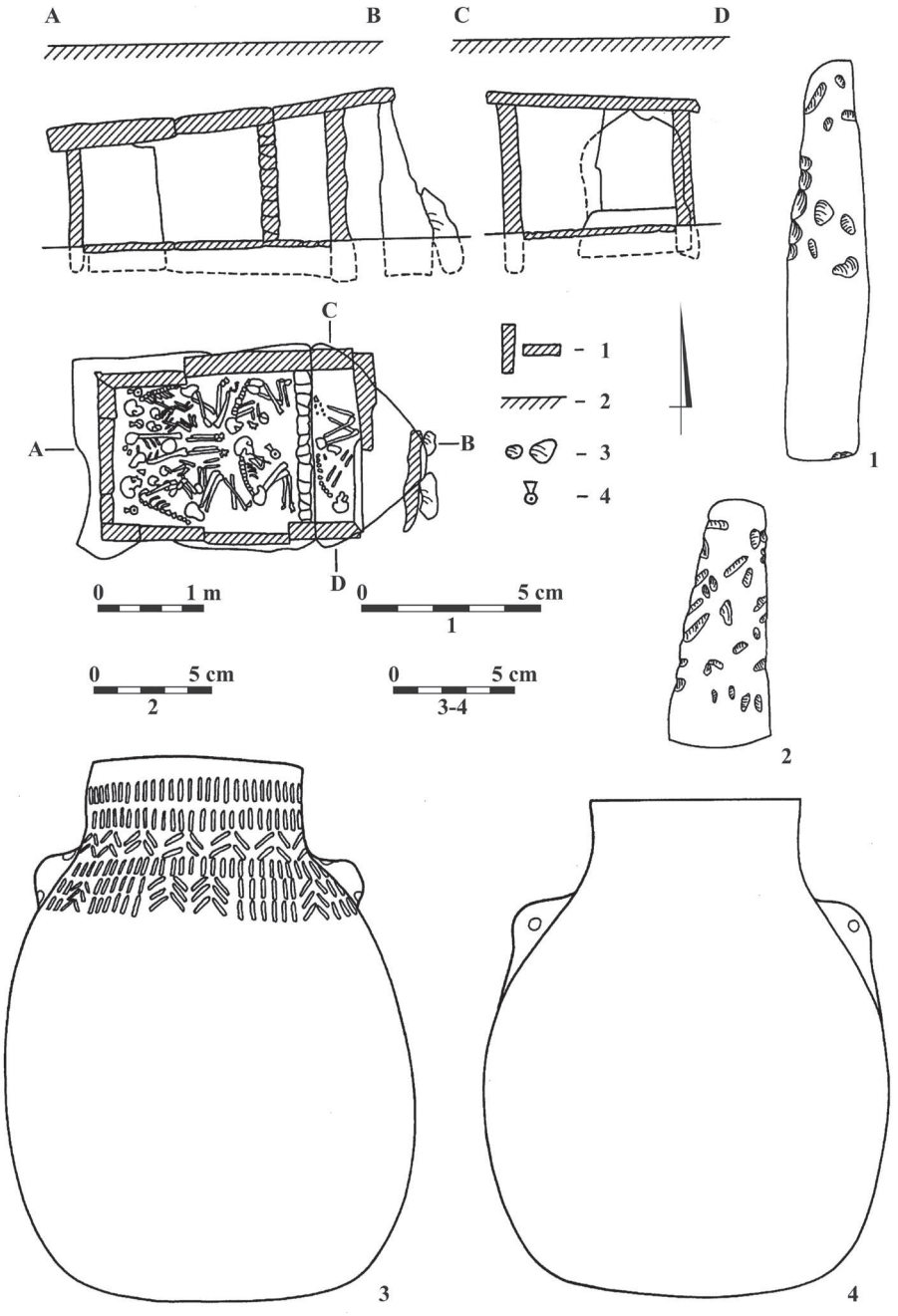

Fig. 3. Stone cist grave of the Globular Amphora culture, Volhynian sub-group: Kolodiezhno II. Plan and cross-sections of the grave and artefacts (1-2 – flint; 3-4 – clay). *Foll.* Levytskyi [1930]; Sveshnikov [1983]; Szmyt [1999]. Key: 1 – slabs; 2 – present surface; 3 – stones; 4 – vessel

chaeological taxonomy: GAC, steppe Eneolithic and the broad circle (community) of the Yamnaya culture. Within the last-mentioned unit, Budzhak [Ivanova 2012] and Kemi Oba [Toschev 2007] cultures are considered. Interestingly enough, both Eneolithic stone cist graves and those associated with the Yamnaya culture are found in the southern belt of the steppes: from the Danube to Dnieper. East of the latter, only few such graves are located (Fig. 1).

The following review of the above-mentioned cultural contexts in which stone cist graves were constructed covers only selected regions for which comprehensive publications are available.

3.1. FOREST-STEPPE (VOLHYNIA, PODOLIA, AREA BETWEEN THE PRUT AND SERET RIVERS): GLOBULAR AMPHORA CONTEXT

Stone cist graves are one of the most important diagnostic traits of the GAC in all its territorial groups. In the area under discussion, an eastern group of the GAC is distinguished. It covered Volhynia, Podolia, the Moldavian Upland and the western part of the Middle Dnieper basin. Three principal site concentrations, forming the nuclei of three separate sub-groups of the eastern GAC, are distinguished: Volhynian, Podolian and Moldavian. Further east and southeast, single sites are dispersed, with two having been identified even on the east bank of the Dnieper [Sveshnikov 1983; Szmyt 1999; 2000; Rozdobudko, Yurchenko 2005; Szmyt 2009; Łysenko, Szmyt 2011]. West of the area occupied by the Moldavian (Seret) sub-group, on the west side of the Carpathians in Transylvania, only one grave has been identified so far: in Sânmartin-Ciuc [Székely 2002].

The chronological brackets of the GAC eastern group, i.e. its rise and decline, are roughly determined, although precise dates are subject to discussion [Szmyt 1999; 2001; 2003; 2009; Mihailescu-Bîrliba, Szmyt 2003]. Probably in the late 4th millennium BC (in its final century?), GAC populations arrived in western Volhynia from the Lublin Upland. As shown by the currently available radiocarbon age determinations of grave assemblages from Podolia and the Moldavian Upland, the settling of these areas proceeded rather quickly, possibly within a single century. In contrast, a slower pace was kept by population shifts towards eastern Volhynia and the middle Dnieper. The decline of the GAC eastern group took place around the middle of the 3rd millennium BC.

Stone cist graves are considered one of the principal distinctive traits of the GAC eastern group and represent a considerable percentage of grave forms in each of its sub-groups: Volhynian, Podolian and Moldavian [Sveshnikov 1957;

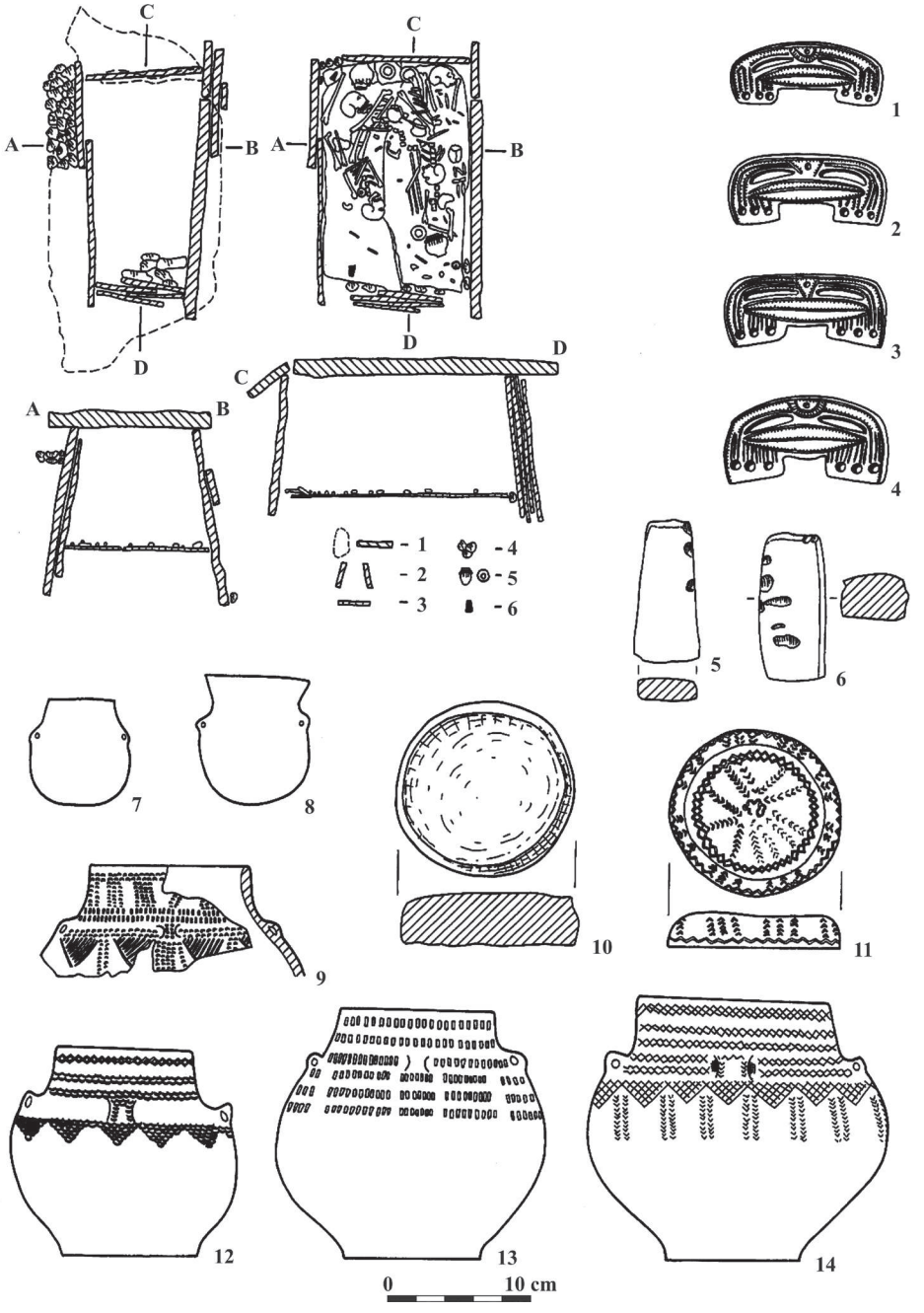

Fig. 4. Stone cist grave of the Globular Amphora culture, Podolian sub-group: Khartonivtsy II. Plan and cross-sections of the grave and artefacts (1-4 – bone; 5-6 – flint; 7-13 – clay). *Foll.* Sveshnikov [1983]; Szmyt [1999]. Key: 1-3 – slabs; 4 – stones; 5 – vessels; 6 – flint axes

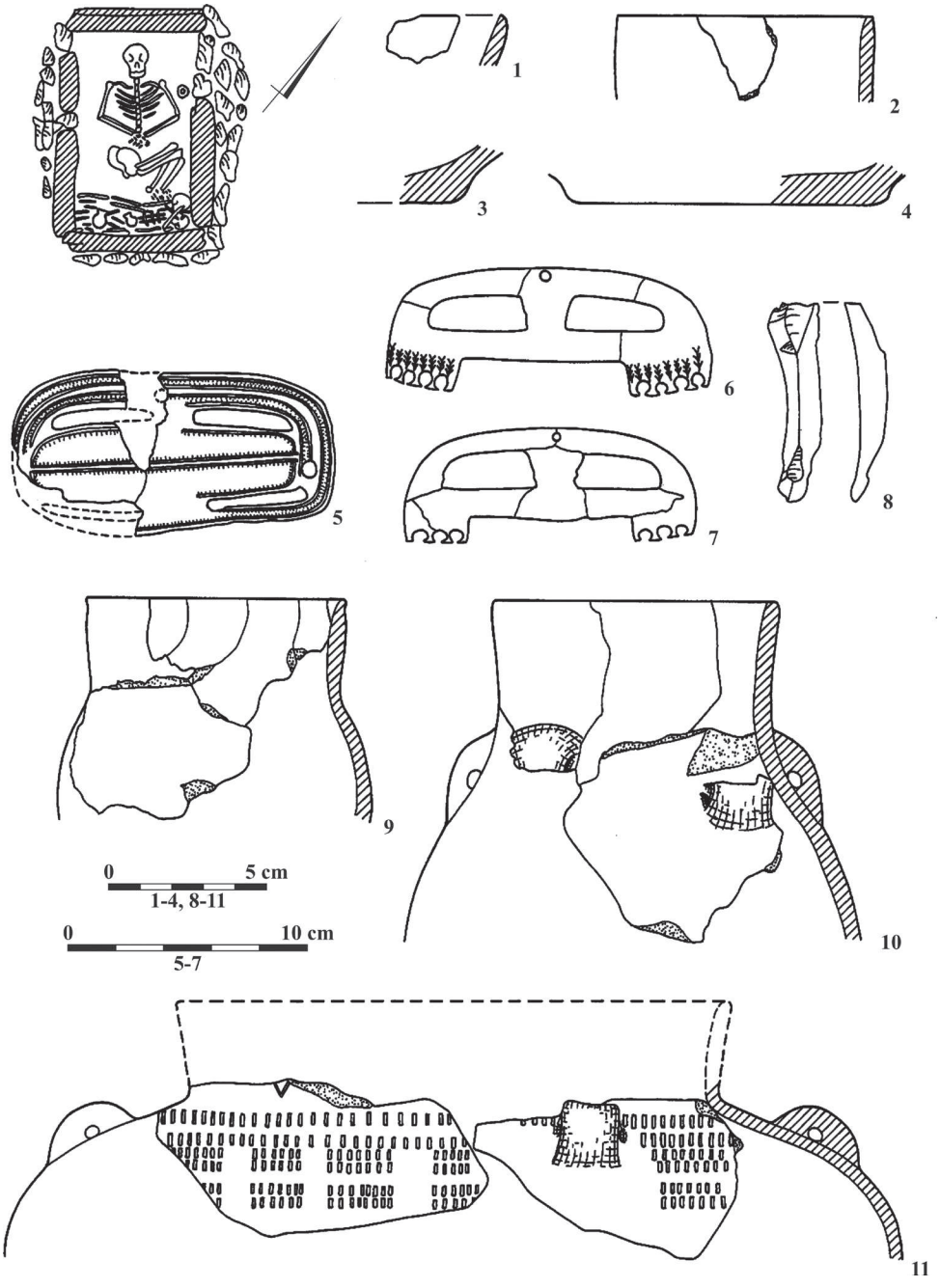

Fig. 5. Stone cist grave of the Globular Amphora culture, Podolian sub-group: Uvisla. Plan and cross-sections of the grave and artefacts (1-4, 9-11 – clay; 5-7 – bone; 8 – flint). *Foll.* Antoniewicz [1938]; Szmyt [1999]

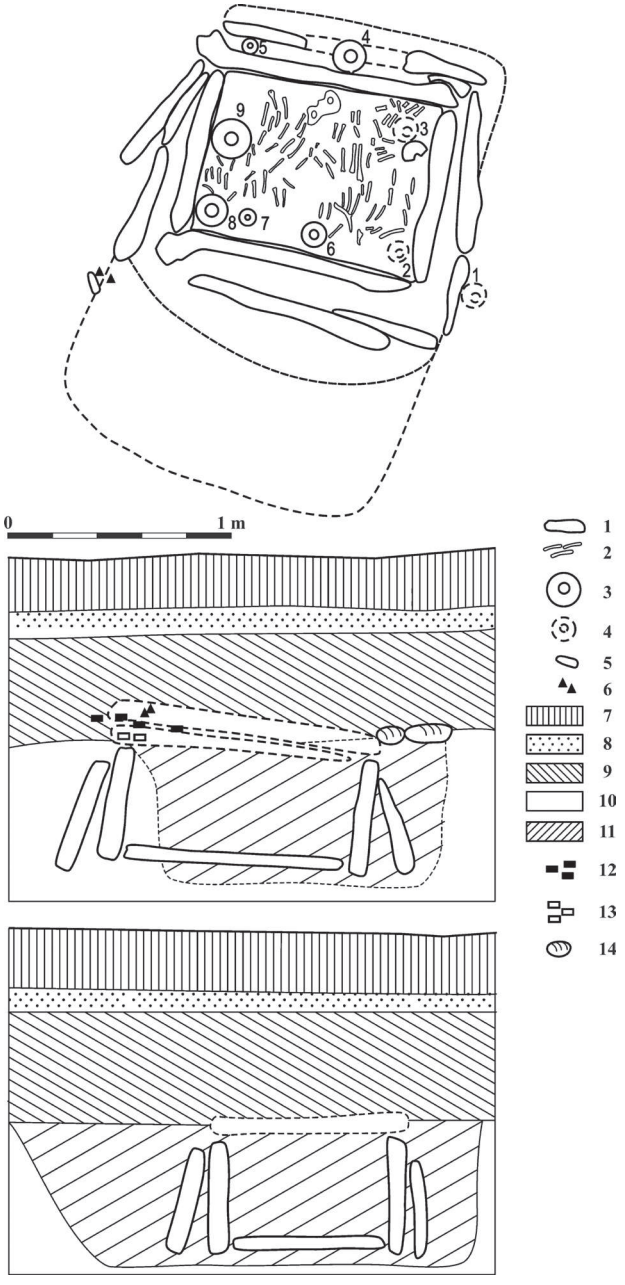

Fig. 6. Stone cist grave of the Globular Amphora culture, Moldavian (Siret) group: Mastacăn. Plan and cross-sections of the grave. *Foll.* Mihailescu-Bîrliba [2001]. Key: 1 – stone slabs; 2 – bones; 3 – clay vessels; 4 – broken vessels; 5 – flint axe; 6 – pottery shards; 7 – arable layer; 8 – brown soil with yellow spots; 9 – black soil with pottery shards and daub; 10 – yellow rock-bed; 11 – compact black soil; 12 – daub; 13 – pottery shards; 14 – pebbles

1983; Wiślański 1966; Szmyt 1999]. Examples of cist graves from Volhynia include Ivanye, Kolodiezhno, Tovpyzhyn or Ulvivok (Fig. 2 and 3). In Podolia, most of the local well-documented graves can be considered as cist features. Their principal traits can be illustrated by such features as those found in Dovhe, Gorbasiv, Khartonivtsy I, Khartonivtsy II, Uvisla or Velika Slobidka (Fig. 4 and 5). In the Moldavian sub-group, too, cist graves account for the majority of assemblages discovered so far, as for instance in Calu-Piatra Soimului, Bargauani or Mastacăn (Fig. 6). A stone cist may also be observed in the form of the grave from Sânmartin-Ciuc, Transylvania, mentioned earlier [Székely 2002].

Describing eastern-group cist graves in 1999, this author discussed their structure, size, number of deceased individuals, manner of corpse deposition and grave goods [Szmyt 1999: 25-30]. This information shall be repeated below in brief with necessary additions.

As a rule, the principal form of such graves everywhere is a rectangular or trapezium-shaped cist; an oval variety is found in Volhynia (Skolobiv). Moreover, only in Volhynia, are entrance structures adjoining the cist encountered (Kolodiezhno II). Differences in the building material used for constructing cist graves can be noticed in Podolia and on the Moldavian Upland where these are in the form of stone slabs (often inclined inwards), while in Volhynia stone blocks were used as well. Gaps between slabs or blocks are sometimes filled with fine stones (Ivanye), which were also used for propping up slabs/blocks on the outer side, more often in Podolia (Khartonivtsy I and II, Uvisla) than in Volhynia (Tovpyzhyn). Another special 'Podolian' trait consists in adjoining additional slabs on the outside to prop up or reinforce grave walls (Dovhe, Gorbasiv, Khartonivtsy I and II). It is also in this region that the grave chamber bottom as a rule was paved with a stone slab(s) and the chamber was covered in a similar manner. These additional elements are absent from most Volhynia features. Relatively often, the entrance wall was higher than the others (Aneta, Ivanye, Kolodiezhno II and Skolobiv in Volhynia, and Dovhe in Podolia).

The dimensions of Volhynia cists remain between 1.5 × 0.7 m (Vysokoe) and 2.26 × 1.28 m (Kolodiezhno II) or 3.0 × 0.95 m (Ostrog-Karpaty), but the most common length is approx. 2.0 m and width approx. 1.0 m. Podolia grave measurements vary from 1.3 × 0.7 m (Bavoriv-Zastavye 1) to 2.2 × 1.7 m (Zavadyntsy) and 2.5 × 1.0 m (Hlybochok), with 1.5-2.0 × 1.0 m being the most common dimensions.

The clearly predominant burial rite was inhumation. The body was most often laid in anatomical order, but in collective graves, this rule is often departed from. There are no obvious rules of corpse deposition either: various positions are encountered albeit a crouched position on the left or right side dominates (Aneta, Basarabi, Bavoriv-Zastavye I, Khartonivtsy I), with the extended (supine) position being less frequent (Uvisla). Very infrequently, the body could be placed in a seated position (Dovhe, Khartonivtsy II). Few sex determinations of the dead prevent researchers from finding out whether the burial rite differed in regard to sex.

Cist graves held the burials of one to several individuals (up to 10 in Volhynia and 6-7 in Podolia and the Moldavian Upland). Approximately 30 percent of Volhynian and Podolian graves contained a single burial, whilst this proportion rises to almost 60 percent in the Moldavian Upland. The second most common category was burials of 2-3 individuals – recorded in 40 percent of graves in Podolia, 45 percent in Volhynia, and only 16 percent in the Moldavian Upland. Graves with more than one individual buried accounted for almost 30 percent of features in Podolia, over 20 percent in Volhynia, and 25 percent in the Moldavian Upland [Szmyt 1999: 28; 2002: 222-223 and Fig. 26].

In several instances, traces of the recurrent use of graves can be identified whereby successive bodies were deposited at certain time intervals. For instance, in Velikaya Slobidka, the remains of two individuals lay within the chamber, and on the outside, by one of the southern walls, a third skeleton was found [Sveshnikov 1983: 51]. The remains of five bodies were discovered in Khartonivtsy II (Fig. 4) where the arrangement of the bones indicates the multiple laying of the dead in the grave [Sveshnikov 1983: 48-50].

Various cases are known, too, in which several bodies were deposited in a grave at the same time to form an elaborate arrangement. The best known of these is the well-known feature at Kolodiezhno II (Fig. 3), where nine bodies were placed in the main chamber in a 'heraldic' formation, with another male, aged about 30, laid in the antechamber [Levytskiy 1930].

A significant distinction is clearly visible in the orientation of burial chambers between features from Volhynia and those from Podolia. In Volhynia, the chambers were most often orientated latitudinally: W-E or E-W, although other orientations were also used (NE-SW, NW-SE, S-N). In Podolia, meanwhile, NW--SE and N-S orientations predominated, with less frequent occurrence of NE--SW, E-W and SE-NW orientations.

Grave goods comprised mostly vessels (usually a few), flint axes (one or a few) and bone artefacts (various blades, so-called buckles or wild boar tusks). Sporadically, there are encountered fine flint tools and, in Volhynia and Podolia graves, amber artefacts. In several instances colorants were identified such as ochre, and white and yellow clay. For example, in Kolodiezhno II and Ostrog-Karpaty the bodies were dusted with ochre, in Suyemtsy II, ochre was sprinkled around the body, while in Skolobiv only small lumps of ochre were found. White clay was sprinkled on the deceased in Aneta, whereas yellow was applied to a grave in Zavadyntsy, Podolia, where rolls of this substance were placed on a male corpse. Also animal remains were discovered in all of the more thoroughly examined cist graves, which most commonly proved to be bones of domestic animals, mainly pigs, less frequently cattle and sheep or goats. In this particular context, very infrequently (Dovhe, Podolia), traces of fire were identified in the chamber, causing the bones lying there to be burnt [Sveshnikov 1983: 40].

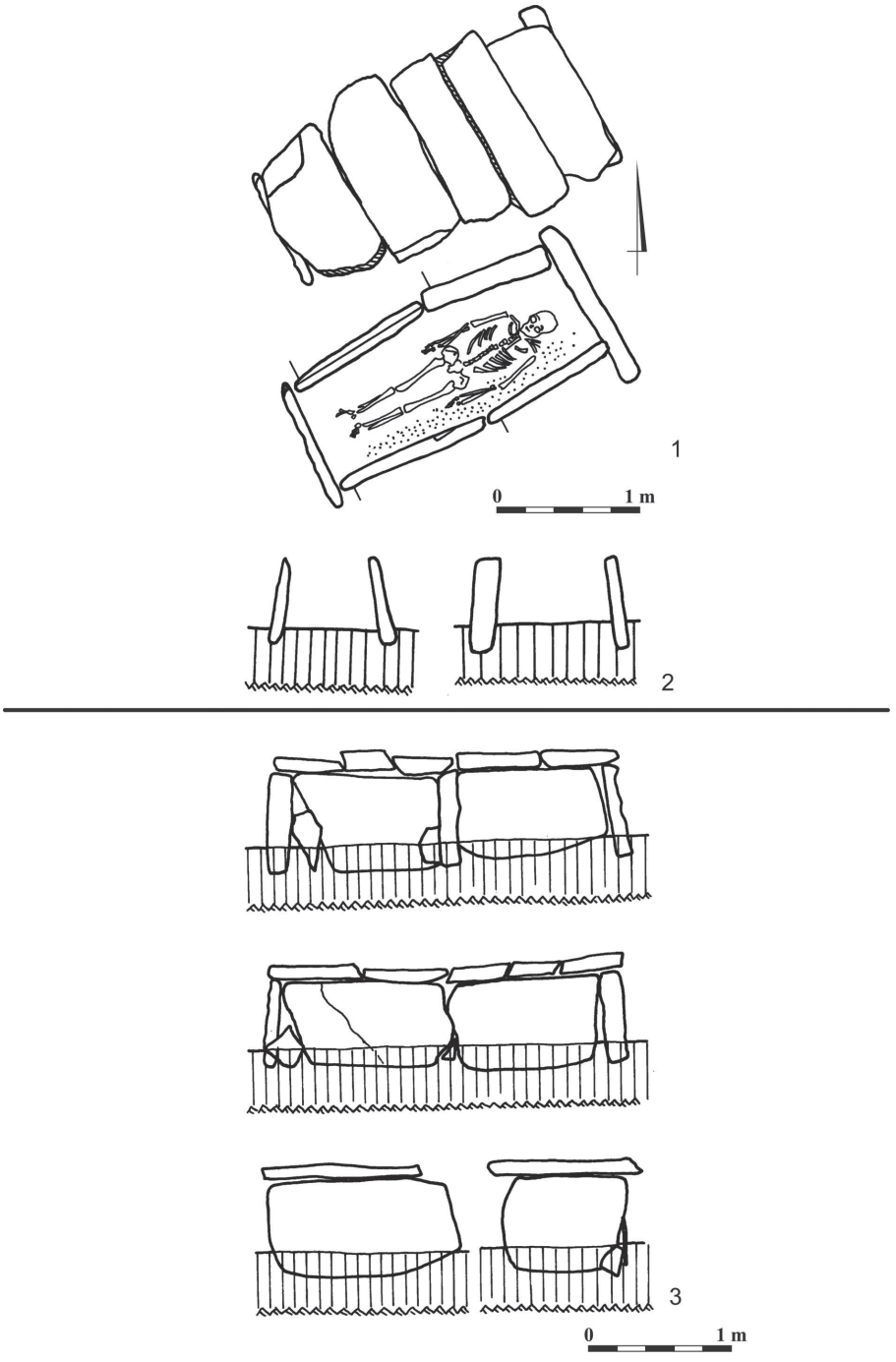

Fig. 7. Eneolithic stone cist grave of group I: Maryevka, kurgan 14, grave 7. *Foll.* Rassamakin [2004]. Key: 1 – plan; 2 – cross-sections; 3 – walls of the grave

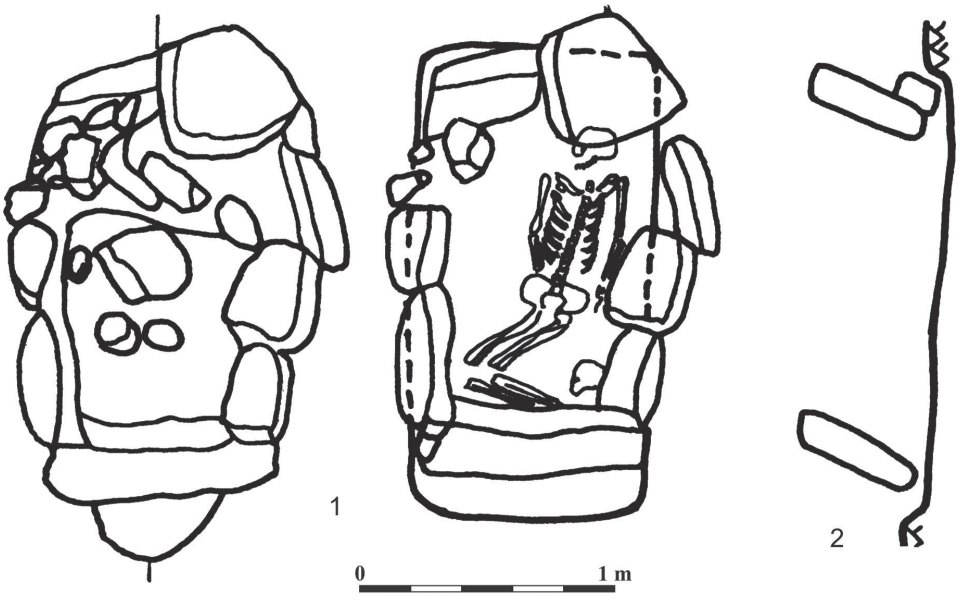

Fig. 8. Eneolithic stone cist grave of group IIA: Starorogozheno, kurgan 1, grave 28b. *Foll.* Rassamakin [2004]. Key: 1 – plan; 2 – cross-section

A comparison of stone cists with other GAC grave forms reveals similarities and differences between them. The latter include the number of bodies laid in the grave. Whereas the remains of one to three people are discovered in both cists and features with other stone elements or ones without any such structures, burials of a greater number of dead individuals were found only in cist graves. Furthermore, grave goods in stone cists tend to be richer than those placed in graves of a different structure, but the basic set of artefacts (vessel(s) + flint axe) remains the same. Rare stoneless graves, deprived of any grave goods, are an exception [Szmyt 1999: 26].

3.2. BLACK SEA STEPPES: ENEOLITHIC CONTEXT ('PRE-YAMNAYA' GROUPS)

Among the sepulchral features of the so-called steppe Eneolithic, stone cist graves represent a small percentage: among 983 such features included in Rassamakin's catalogue [2004], there are only 26 stone cist graves. According to the current knowledge, they appeared in the Late Eneolithic, in 'pre-Yamnaya' traditions referred to as post-Mariupol, post-Stog, Nizhna Mikhailivka and Zhivotilovka

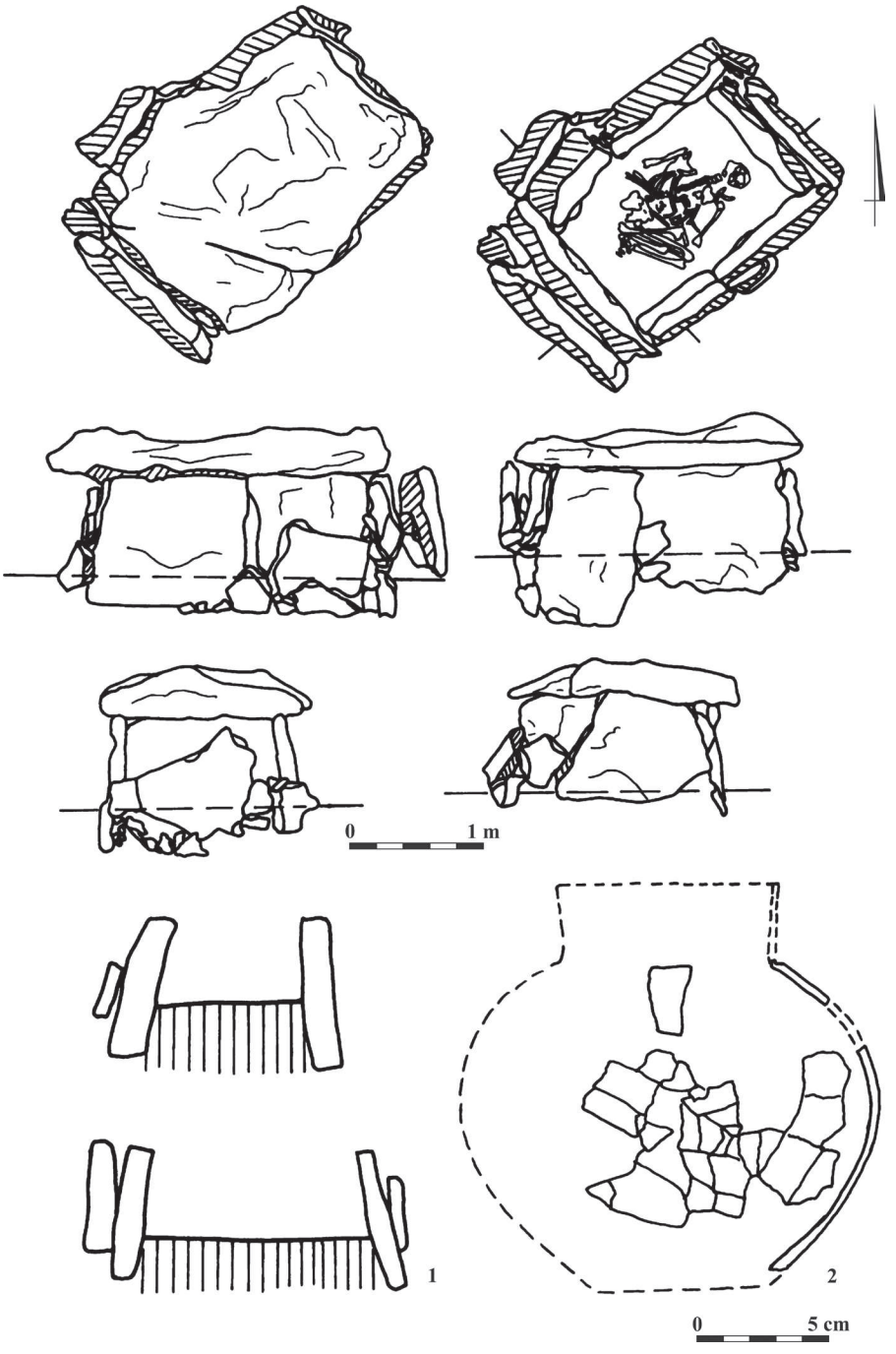

Fig. 9. Eneolithic stone cist grave of group IIIA: Liubimovka, kurgan 14, grave 7. *Foll.* Rassamakin [2004]. Key: 1 – plan and cross-section of the grave; 2 – clay vessel

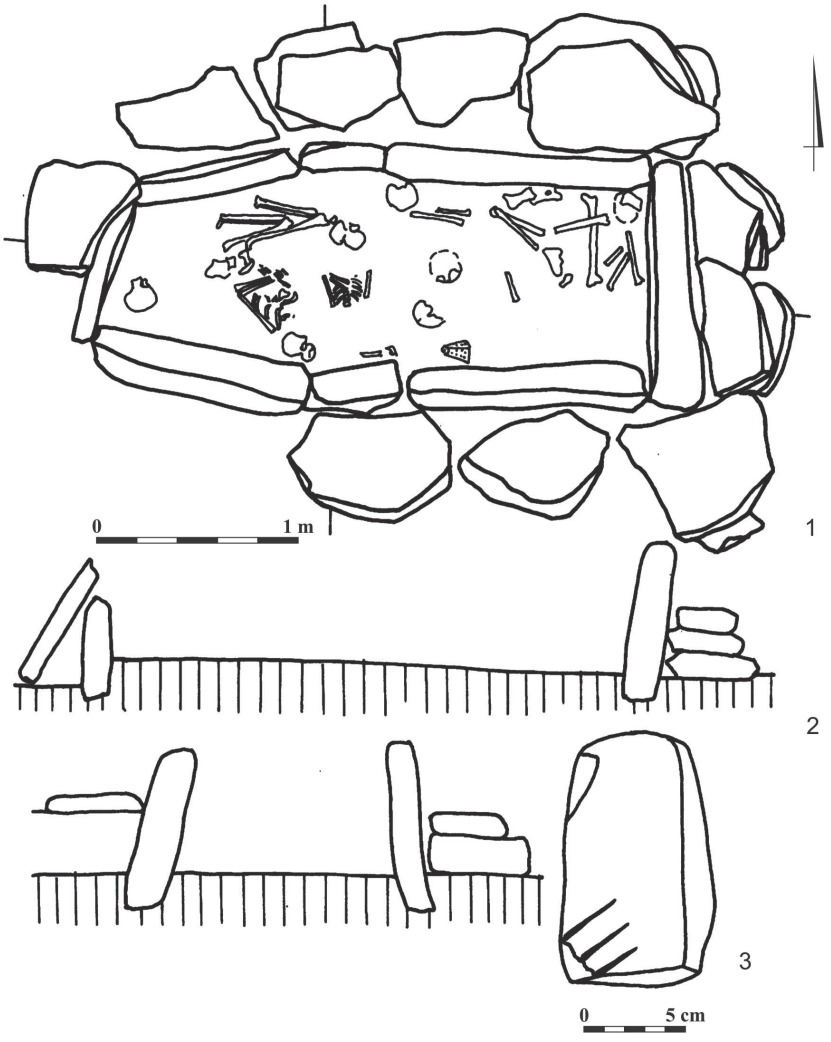

Fig. 10. Eneolithic stone cist grave of group IIIC: Baratovka, kurgan 1, grave 6. *Foll.* Rassamakin [2004]. Key: 1 – plan; 2-3 – cross-sections

[Teslenko 2002: 79-80; Rassamakin 2004: 204-209]. As a rule, they are discovered under barrows or in their mounds, but are also found in flat cemeteries (without barrows). Rassamakin provides descriptions of many stone or wooden cists, ascertaining their presence in the following groups and varieties he distinguished: I, II, IIA, IIB, IIC, IIIA and IIIC respectively; only group IIIB is found to lack any cists. Stone cist graves therefore, are not a trait that sets apart or co-defines any steppe tradition. This observation is highly significant for further discussion.

Group I (first tradition, after Rassamakin) comprises nine stone cist graves [Rassamakin 2004: Tab. B]. The cists were built on the ground surface and covered with barrows. These are both primary graves and ones dug into an existing barrow. As an example may serve a grave from site Marievka, kurgan 14, grave 7 [Rassamakin 2004: 45]. It was placed in the centre of a cromlech, on the original surface of the ground, orientated NE-SW and measuring 2.1 × 0.8-06 m (Fig. 7). The cist was built of six dressed slabs; at least one was dressed in situ as seen from chipped-off fragments. Two kinds of material were used: granite for the side walls and shell limestone for headwalls. The NE wall was more massive than the SW one. The slabs were sunk into the original ground for 0.2 m, slightly inclined inwards and propped up with smaller stones. The inner surface of the NE-wall slabs was coloured with ochre. The grave was sealed at the top with five slabs. In the chamber, on the bed of bark sprinkled with chalk, a single adult individual lay supine, with the head pointing NE. His or her bones were coloured with ochre and bore traces of tar.

In group II (second tradition), in barrowless cemeteries, five stone cists were discovered. They are represented by a grave from Olkhovatka, kurgan 1, grave 4 [Rassamakin 2004: 71]. A rectangular cist, measuring 2.0 × 1.6 m, had probably been placed in a pit. Its walls were made up of over a dozen thin slabs, while the cover consisted of two slabs separated by a layer of clay. The chamber held the remains of two adults lying flexed on their backs, heads pointing W. At burial 2, one retouched flint and goat bones were found.

In group IIA (second tradition), in barrows, three stone cists were discovered [Rassamakin 2004: 40-41] whose characteristics are illustrated by a feature from Starorogozheno, kurgan 1, grave 28b (Fig. 8). A rectangular cist, orientated NE--SW stood on the original surface of the ground and was sealed by a barrow [Rassamakin 2004: 97]. The cist was covered with a single slab. Inside, one burial was identified (the body lay supine, slightly turned to the right, with the legs flexed and the head pointing NE), covered with ochre. In addition, the skull of another individual and a lump of ochre were found.

Group IIB (second tradition) comprises a single cist which was explored on site Zolotaya Balka [Rassamakin 2004: 101]. The cist, placed inside a cromlech and orientated N-S, was rectangular and measured 1.75 m × 0.75-1.0 inside. It contained a single flexed burial with the head pointing S.

Group IIC (second tradition), in turn, holds two stone cist graves [Rassamakin 2004: 118 and Tab. F]; both come from a barrow in Kichkas. One of the cists was built of seven gneiss slabs and covered with similar slabs. It measured 2.65 × 0.96--0.83 m. Inside, a dead adult lay supine with his or her legs flexed and head pointing SE. The earth inside the chamber was coloured with ochre and at the individual's legs, three ornamented bone beads were found.

Group IIIA (third tradition), comprising barrow burials, includes three stone cists [Rassamakin 2004: Tab. G]. Their characteristics may be illustrated by one from Liubimovka, kurgan 14, grave 7, which was the primary grave in the barrow

[Rassamakin 2004: 122]. A cist (Fig. 9), measuring 2.5 × 1.6 m and 1.35 m high inside, orientated NE-SW, was placed in the centre of a stone structure and covered with a single huge slab (dimensions: 2.4 × 1.8 m; thickness: 0.4 m). Its walls consisted of six slabs (dressed on the inside) sunk into the chernozem for 0.3-0.5 m and slightly inclined inwards. Gaps between the slabs were sealed and the walls were propped up with additional slabs on the outside. The chamber held a single burial; the body must have been laid crouched on the left side, with the head pointing NE. There were also two vessels. The chamber bottom was covered with ochre. The traces of white bedding have survived as well.

In group IIIC (fourth tradition), composed of barrow burials, four stone cists were recorded [Rassamakin 2004: 57]. One was discovered in Starorogozheno, kurgan 1, grave 9 [Rassamakin 2004: 153]. It was subrectangular, measured 1.3 × 0.9 m and was orientated N-S. Its walls of limestone slabs were topped by a single slab. The bottom was sunk 0.2 m below the bottom edges of the slabs. The chamber held two burials sprinkled with ochre: one of an adult and the other of an adolescent. The former had been laid in the crouched position on the left side, with the head pointing NE, while the latter was contracted and lay on the right side, with the head pointing S.

A feature of group IIIC, which stands out owing to the number of burials, is a stone cist from Baratovka, kurgan 1, grave 6 [Rassamakin 1996: 120-128; 2004: 152-153]. Sunk into an older barrow, the cist had the shape of an elongated trapezium, measuring 3.05 × 1.3 m on the outside and 2.65 × 1.0 m on the inside (Fig. 10). Above the cist, 1.25-1.0 m above the original surface of the ground, there was a 'pavement' of slabs and smaller stones, occupying an area of about 4.0 m in diameter. The cist, orientated W-E, stood on the original surface of the ground into which slabs were dug 0.15-0.2 m deep. Its walls were built of eight slabs (three slabs on each of the long sides and one slab on each short side). Inner slab surfaces were dressed and gaps between the slabs were smeared over with clay mixed with earth. The upper edges of the slabs rose to 0.62-0.8 m above the original ground surface, with the E wall rising the highest. The N, S and E walls were propped up on the outside by rows of horizontally placed slabs. Only at the W wall, possibly the entrance one, was there a single obliquely placed slab, covering the slit between the wall and 'pavement'. In the grave chamber, the remains of six bodies were found. One skeleton lay in the north-eastern corner, four in the cist centre, and one at the western wall. A considerable number of mixed bones were found in the eastern part of the chamber. Only two skeletons in the western part were preserved in situ, although their skulls were missing. One belonged to an adult, lying crouched on the right side, with the neck pointing SSE. The other was observed to be a child deposited probably in the embryonic position and orientated similarly to the previous one. The remains of both dead individuals were sprinkled with ochre. The chamber held a single element of grave goods: a piece of ochre 14.3 cm high with shaped and smoothed-out surfaces.

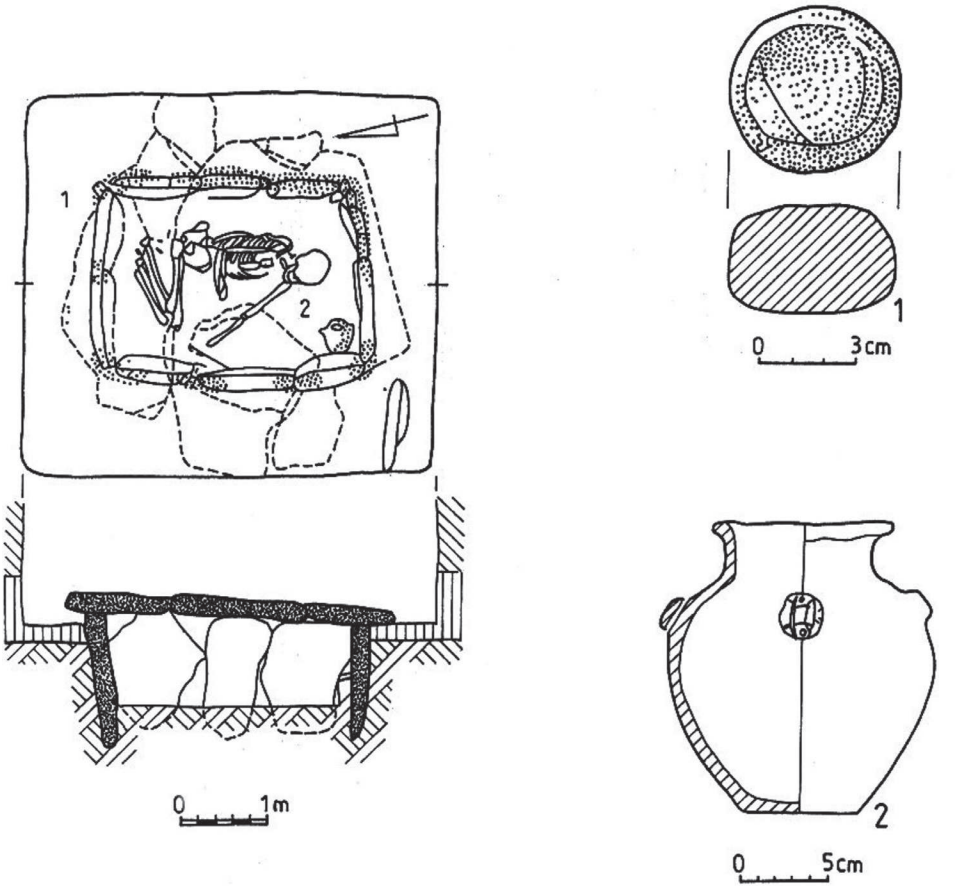

Fig. 11. Stone cist grave of the Budzhak culture: Tatarbunary. *Foll.* Subbotin [1988]. Key: 1 – plan and cross-section of the grave; 2-3 – artefacts (2 – stone; 3 – clay)

As regards chronology, stone cists emerge in stone sepulchral architecture in the course of the late Eneolithic, in the period corresponding to stage CII of the Tripolie culture, i.e. in the final centuries of the 4th and the beginning of the 3rd millennia BC [Rassamakin 2004: Fig. 125 and 126; Teslenko 2007: 80]. They are unevenly distributed over the steppes: most fit into the southern steppe belt, between the Danube and Dnieper rivers, including the eastern (left) bank of the latter [Teslenko 2002: 107]. The greatest concentration is found between the Boh and Dnieper, primarily in the drainage basin of the Inhulets and its tributaries. The stone cists of group IIIA (Nizhna Mikhailivka) are concentrated in the drainage basins of the Inhul, Inhulets and Dnieper rivers. On the Inhul and Inhulets, underneath one barrow, there were even several such features (in Starorogozheno and

Baratovka). Cists associated with the post-Mariupol tradition are located in the centre of the Inhulets drainage basin. Cists included in the Zhivotilovka group, in turn, are situated in the same regions as the other grave forms of this group [Teslenko 2002: 107-109].

As shown by Teslenko [2002: 107] and confirmed by the review of data compiled by Rassamakin [2004], cist graves in terms of other traits of the funerary rite and their inventories do not differ from other grave types linked to the steppe Eneolithic.

To make the picture complete, it has to be mentioned that stone cist graves are known also in the Usatovo culture – a steppe variety of the Tripolie culture from its stages CI and CII, albeit there are few of them (information of only two such features has been published so far). One is grave 1 (central) from barrow I-2 in Usatovo, described as a rectangular cist built of four slabs, measuring 1.2 × 0.9 × 0.9 m and covered with a single slab [Petrenko 1989: 94]. The other 'Usatovo' cist may be identified with a feature from barrow 10 in Efimovka [Teslenko 2007: 80].

3.3. STEPPE ZONE IN THE DNIESTER-DANUBE BASIN: CONTEXT OF THE BUDZHAK CULTURE

In the Budzhak culture – a north-western branch of the Yamnaya culture circle found between the Dniester and Danube rivers [Ivanova 2012, here older literature] – the share of stone cists in the overall number of 'pit' graves is small. According to Ivanova's calculations, there are over 2,632 of the latter, while cist features number below 20, i.e. less than one percent [Ivanova, Petrenko, Vetchinnikova 2005: 132--145; Ivanova 2012: 110]. They concentrated east of the Dniester. Apart from the stone structure, all other traits of the funerary rite correspond to what is observed in the other graves of the Yamnaya culture circle, including the Budzhak culture [Ivanova, Petrenko, Vetchinnikova 2005: 141; Ivanova 2012: 109].

In terms of barrow stratigraphy, only the Velikozimenovo feature proved to be a primary grave over which a barrow was raised. All the others were placed in already existing older barrows. Cists were usually placed in depressions made in barrow mounds, which were deepened in their central portion to make space for slabs [Ivanova, Petrenko, Vetchinnikova 2005: 135-138].

All graves discussed here were rectangular in plan and their chambers were surrounded by four to ten usually rectangular or subrectangular slabs. Gaps between wall slabs were filled with fine stones and smeared over with clay. Cist dimensions varied from 1.0 × 0.8 m ('Soldatskaya slava') to 2.4 × 1.2 m (Velikozimenovo) [Ivanova, Petrenko, Vetchinnikova 2005: 138]. Bottoms were usually

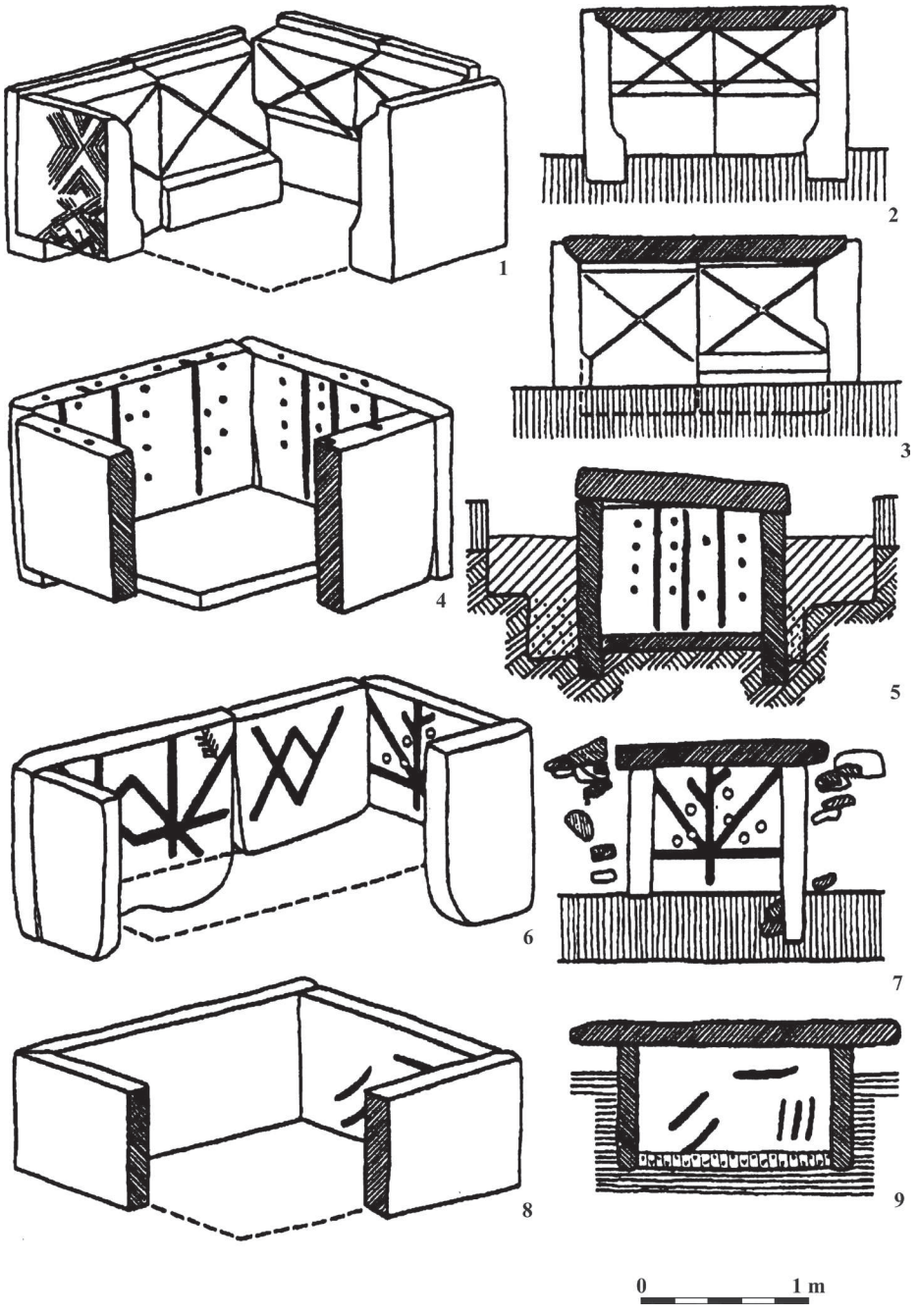

Fig. 12. Stone cist graves of the Budzhak culture. *Foll*. Subbotin [1995]. Key: 1-3 – Velikodolinskoe, kurgan 1, grave 1 (a reconstruction); 4-5 – Starye Beliary, kurgan 1, grave 14; 6-7 – Velikozimenovo, kurgan 1, grave 1; 8-9 – Alkaliya – 'Gostra mogila', kurgan 33, grave 3

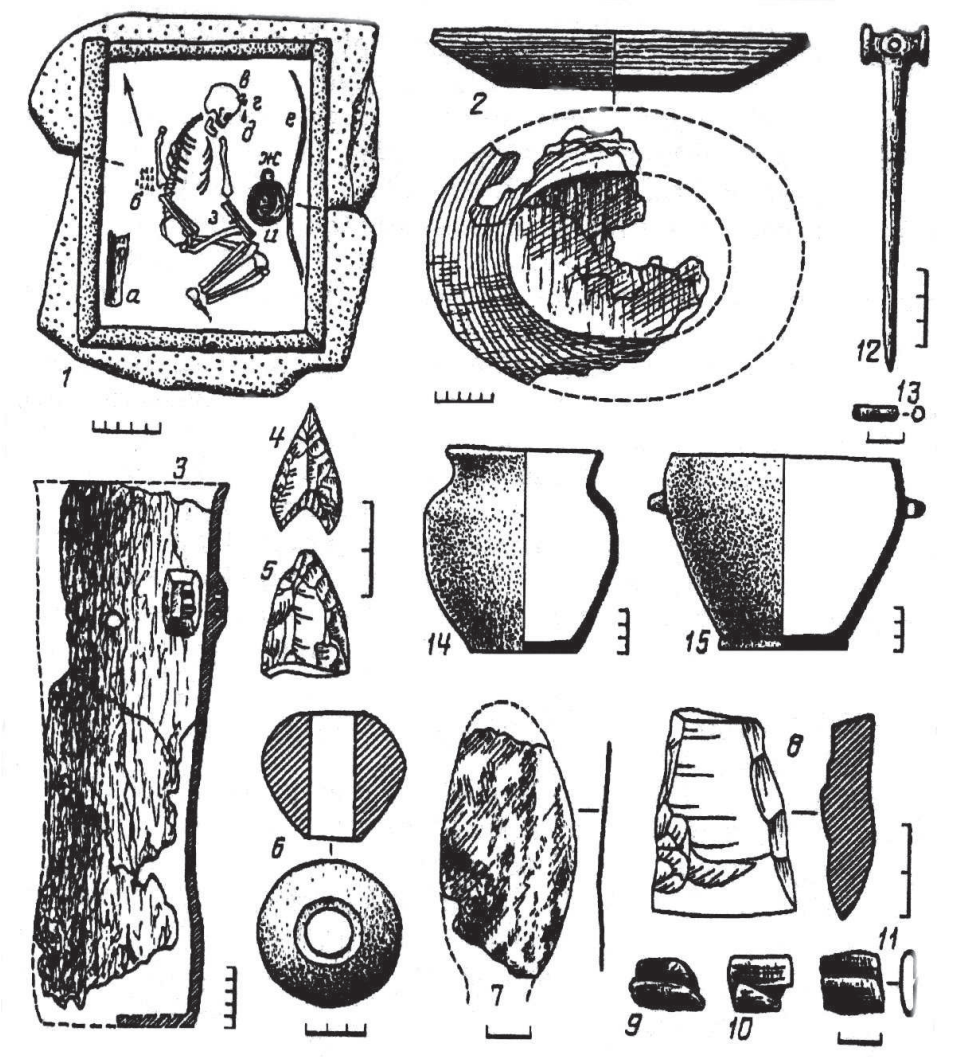

Fig. 13. Stone cist grave of the Budzhak culture. *Foll.* Subbotin [1995]. Key: 1-11 – a grave plan (1) and artefacts from Alkaliya – 'Gostra mogila', kurgan 33, grave 3 (2-3 – wood; 4, 5, 8 – flint; 6 – stone; 7, 9-11 – bronze); 12-15 – artefacts from Starye Beliary, kurgan 1, grave 14 (12 – bone; 13 – bronze?; 14-15 – clay)

earthen; slab-reinforced bottoms were encountered only in two locations: Starye Beliary and perhaps in an Odessa barrow. Cover slabs had various shapes. In Starye Beliary, an anthropomorphic stela was even used for this purpose [Subbotin 1988] and in Velikozimenovo, the grave was covered by a stela fragment [Ivanova, Petrenko, Vetchinnikova 2005: 49, Fig. 31].

In seven features, the inner surface of wall slabs was decorated with ochre: Alkaliya – 'Gostra mogila' (barrow 33, grave 3), Beliaevka (barrow 1, grave 9), Katarzhino (barrow 1, grave 1), Kubey (barrow 21, grave 14), Starye Beliary (barrow 1, grave 14), Sverdlovo (barrow 1, grave 4), Velikozimenovo (barrow 1, grave 1) [Subbotin 1995: 193-196; Ivanova 2012: 107]. In turn, in Velikodolinskoe (barrow 1, grave 1), slabs bearing carved (not painted!) ornaments were recycled in a Yamnaya culture grave[1] [Subbotin 1995: 193; Ivanova, Petrenko, Vetchinnikova 2005: 136].

As a rule, in a grave chamber, a single body was laid, only in Starye Beliary, were two bodies buried. Most bodies were deposited in the flexed position (an exception: one individual from Starye Beliary), on their back (slightly turned to the left) or on the left side (only in Sanzheyka, on the right) [Ivanova, Petrenko, Vetchinnikova 2005: 138].

In Katarzhino, the remains of a leather bedding have survived on which the body was laid; in other features, organic traces were identified on the bones ('Soldatskaya slava'). In Alkaliya there was also found a 10-cm-thick layer of chernozem and ash on the bottom in some features [Ivanova, Petrenko, Vetchinnikova 2005: 139]. Ochre was often used to sprinkle bodies (in Starye Beliary, only heads) and chamber bottoms, and to decorate walls (see above).

Grave goods were found in a half of the features in question [Ivanova, Petrenko, Vetchinnikova 2005: 139]. They included ceramic vessels (from one to three) found in four graves (Tatarbunary, Kubey, Starye Beliary and 'Soldatskaya slava') and other objects retrieved from single cists: wooden painted sticks (Velikozimenovo), a stone 'bolas' (grinder? – Tatarbunary), a small antler hammer mace (Starye Beliary). In Alkaliya and Starye Beliary, the dead individuals were given beads of rolled fragments of copper or bronze sheet metal [Subbotin 1995: 193-196]. Exceptionally varied grave goods were deposited in a stone cist grave in Alkaliya [Subbotin 1995: 195-196; 2003: Suppl. 2] discussed below.

Examples of cist graves from the Dniester area, the descriptions of which illustrate the diversity of the form under discussion, are found in Tatarbunary, Starye Beliary and Alkaliya – 'Gostra mogila'.

Grave 2 from Tatarbunary [Subbotin 1988] has a rather well established position in the history and stratigraphy of the barrow it was sunk into. It was built in the third phase of the use of the barrow, after an older series of Yamnaya culture graves (nos. 7, 6, 4 and 3) and after an enlarging of the mound over graves 3 and 4, but before a Catacomb culture grave (8). A stone cist (Fig. 11), measuring inside 1.4 × 0.95 m, was placed at the bottom of a pit, which was over-deepened in its bottom part. The upper part of the pit, sunk 0.45 m into the ground, was rectangular, measuring 2.4 × 2.2 m and orientated SE-NW. Whereas its bottom part, sunk 0.6 m into the ground, measuring 1.6 × 1.25 m

[1] A similar case is known from the steppes on the Boh river [Shaposhnikova, Fomenko, Dovzhenko 1986: 124, Fig. 46, 5-11].

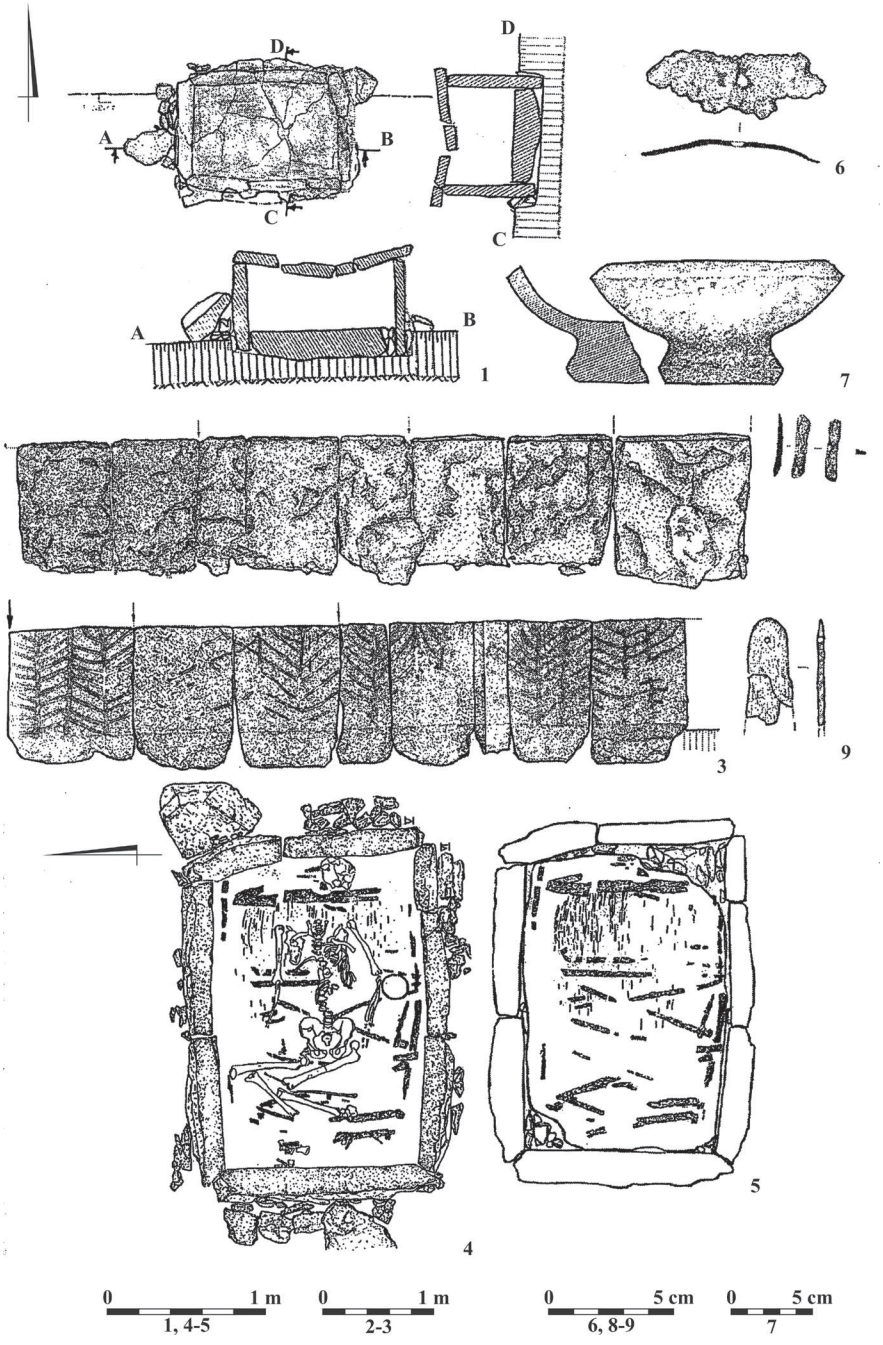

Fig. 14. Stone cist grave of the Yamnaya culture in Ingulets area: Zelenyi Hay, kurgan 5, grave 4. *Foll*. Melnyk, Steblyna [2012]. Key: 1, 4, 5 – plan and cross-sections of the grave; 2-3 – outer and inner surface of stone walls; 6-9 – artefacts (6, 8 – copper, 7 – clay; 9 – wood)

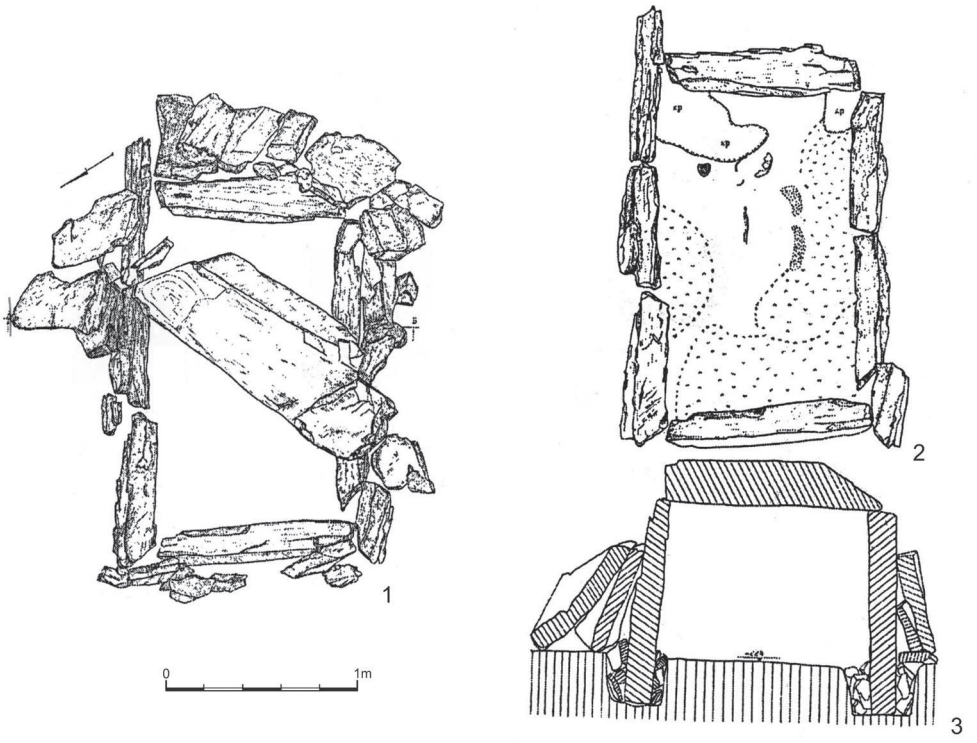

Fig. 15. Stone cist grave of the Yamnaya culture in Inhulets area: Nedayvoda, kurgan group "Tri bratia", kurgan 1, grave 2. *Foll*. Melnyk, Steblyna [2012]. Key: 1 – plan of the upper part (ceiling); 2 – plan of the lower part (cist); 3 – cross-section

was orientated SW-NE. The cist consisted of ten flat, subrectangular sandstone slabs (0.1-0.15 m thick). They were sunk 0.05-0.2 m below the pit bottom, with the N wall rising 0.1 m above the others. Gaps between the slabs were filled with fine stones and smeared over with green clay. Clay covered also the upper edges of the slabs. The cist was covered by three large slabs laid in parallel and making up a cover, measuring 2.3 × 1.9 m. At the bottom, traces of an organic bedding were identified, on which an individual had been laid crouched on the left side, with the head pointing S-SW. Behind its back, there was a lump of ochre, while in front of the head, in the SW corner of the grave, a vessel stood. In the fill of the upper portion of the pit, a stone object was found and interpreted to be a 'bolas'.

Grave 14 from barrow 1 in Starye Beliary [Subbotin 1995: 193-194] contained a cist, measuring 1.7 × 1.3 m and consisting of a rectangular bottom slab and four wall slabs covered by an anthropomorphic stela. Gaps between the slabs were smeared over with green clay. The inner surfaces of the wall slabs bore a geometric ornament made with red ochre (Fig. 12:4-5). The cist stood in a pit over-deepened

in its central part, with the wall slabs having been dug into the pit bottom. The grave chamber held two individuals. The remains of one of them, his or her head pointing W-NW, did not keep anatomical order; while the other had been laid in the crouched position on the left side, with the head pointing NW. The bones of both individuals show traces of ochre. By the side of the other individual, there lay three elongated beads made of bronze(?) sheet metal and an antler hammer mace. In a cist corner, behind this individual's head, there was a vessel; another was found close to the cist, at the bottom of the upper part of the pit (Fig. 13:12-15). From the bones of the second individual a ^{14}C date was obtained: Kiev-11209, 4030±80 BP [Ivanova, Petrenko, Vetchinnikova 2005: 142].

A cist was also unearthed in grave 3, kurgan 33 ('Gostra mogila'), Alkaliya cemetery [Subbotin 1995: 195-196]. It was embedded in the barrow mound and measured 1.6 × 1.3 m (Fig. 12:8-9). Its walls were made of four well-fitted slabs, the inner surfaces of which were ornamented with red ochre motifs. The grave was covered with two slabs, while its earthen bottom was hidden under a vegetable bedding on top of which there was a 10-cm-thick layer of chernozem mixed with ash. The body lay crouched on the left side, with the head pointing NE and was accompanied by rich grave goods (Fig. 13:1-11). On the left hand, it displayed a bracelet with three bronze or copper plates threaded on a leather strap (leather remains have survived), at the forehead, a bronze plate (knife?) lay accompanied by a retouched flint flake and a flint axe, while behind its back, there were 11 flint arrowheads.[2] Further away, at the chamber wall, a wooden quiver lay. In front of the body, a wooden vessel and a stone mace head stood; behind them, at the E wall, a bow was found. The Alkaliya grave is unique, standing out in terms of plurality and diversity of grave goods.

Stone cist graves, known from the Budzhak culture, are associated with both its early and late phases. Radiocarbon age determinations of human bones from Starye Beliary [Ivanova, Petrenko, Vetchinnikova 2005: 142] and from three graves discovered in the Akkembetskiy barrow[3] [Szmyt, Cherniakov 1999: 197, Tab. 1] date these features to ca. 2600-2200 BC [Ivanova 2012: Fig. 4.18 and 4.22].

[2] In Subbotin [2003: Suppl. 2], a slightly different set of flint, stone and metal artefacts is given. Here, Subbotin [1995] is relied on.

[3] Due to the death of I.T. Cherniakov, a planned publication of materials from this barrow did not materialize. Cf. a short note: Cherniakov [2004].

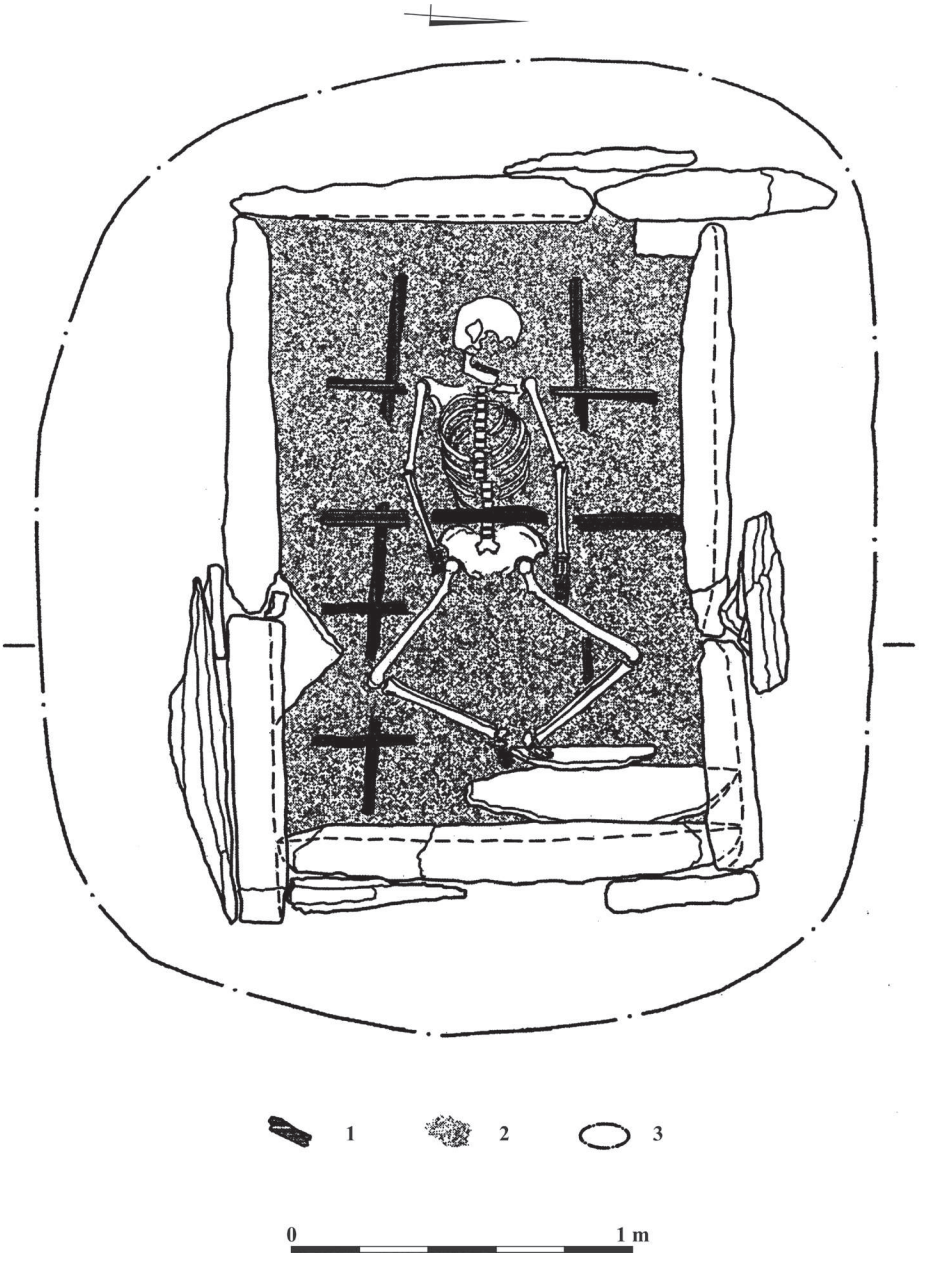

Fig. 16. Stone cist grave of the Yamnaya culture in Inhulets area: Aleksandriya, kurgan 2, grave 1. *Foll*. Rassamakin, Evdokimov [2011]. Key: 1 – wood; 2 – organic bedding and chalk powder

3.4. STEPPE ZONE IN THE INHULETS DRAINAGE BASIN: CONTEXT OF THE YAMNAYA (PIT-GRAVE) CULTURE

The description of features located on the Inhulets River is based on the publication of Yamnaya culture graves found along the middle course of the river, in the vicinity of the city of Kryvyi Rih [Melnyk, Steblyna 2012; 2013]. Relying on this detailed compilation, it is possible to consider this portion of the steppe as a test area for the entire drainage basin, keeping in mind, however, that the cited publications do not exhaust the subject [e.g. Androsov, Melnik 1991].

Thus, among 386 Yamnaya culture sepulchral features, which were discovered in 82 barrows, only 10 contained stone cists [Melnyk, Steblyna 2013: 66-76]. Three were found in primary graves (Zelenyi Hay kurgan 1, grave 4; Dovha Mogila; Nedayvoda kurgan 1, grave 1 – Fig. 14 and 15). The rest were sunk into existing barrow mounds, but their stratigraphic positions varied: one cist was built on the original surface of the ground outside the oldest mound; two others were sunk into a mound above Eneolithic graves, while several ended the sequence of Yamnaya culture burials.

The graves held exclusively single bodies: 7 *adultus*, 1 *iuvenis* and 2 *infans*.[4] In a single case (Rakhmanivka), in the same barrow 4, there were two cists (graves 4 and 9), containing one infant burial each. In the latter (no. 9), chamber inner walls were ornamented [Melnyk, Steblyna 2013: 69].

The cists were built of local rock material: limestone, sandstone, quartzite, green heliodor, granite and iron ore. Chamber walls were built with the following number of slabs: four (2 graves), six (2 graves), seven (2 graves), eight (two graves), ten (1 grave) and even fourteen (1 grave). In six graves, wall slabs were propped up with smaller slabs or lumps placed on the outside. In four cists, bottoms too were covered with stone slabs. Cist dimensions varied from 1.3 × 0.75 m to 3.0 × 2.0 m, but a half stayed in the bracket of 1.5 × 0.85 m to 1.85 × 1.15 m, and three in the bracket of 2.1 × 1.5 to 2.2 × 1.6 m. Covers were single slabs (Dolgintsevo 6) or several more or less precisely fitted slabs or even a whole pile of slabs.

Six cist graves contained grave goods. In three, it was a single object (antler, flint or wood object), in one grave, these were beads, and in another – beads and a flint artefact. On two occasions, formed ochre lumps were found. Only in Zelenyi Hay, kurgan 5, grave 4, did the inventory comprise a greater number of objects: a clay vessel (*kurylnitsa*), a bone plate, and two bronze or copper plates (Fig. 14). In seven graves, ochre was sprinkled over the body and chamber bottom. The traces of an organic bedding were identified in seven cists, in two, those of chalk beddings could be seen while charcoals were found in one grave. In four cists, built of lime-

[4] This may be significant when viewed against the data for all 386 Yamnaya culture graves out of which 24 held the remains of more than one individual. In 19 cases, these were two burials in a grave, in three cases – three burials, and in one case, two complete burials and two skulls of other individuals [Melnyk, Steblyna 2013: 28].

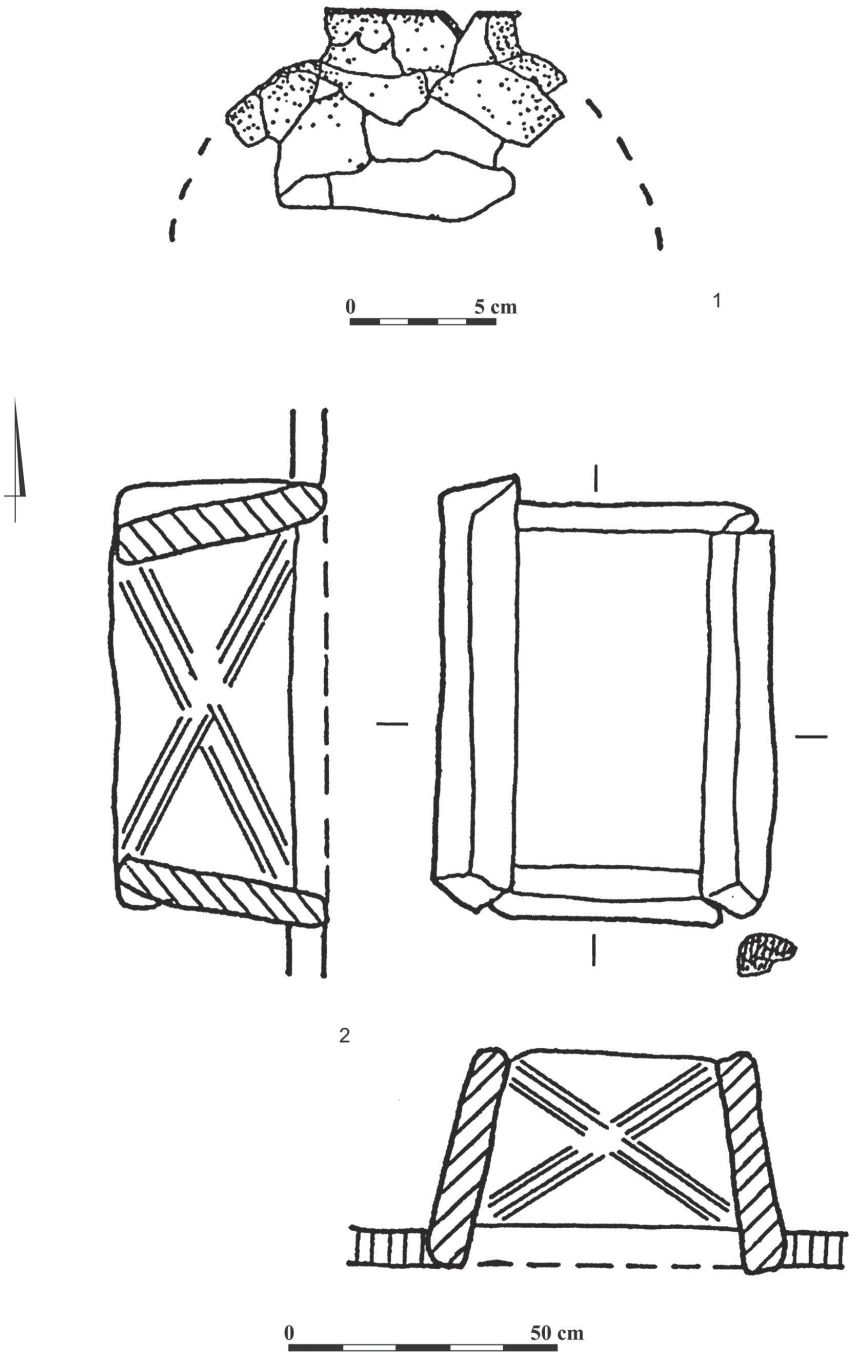

Fig. 17. Stone cist grave of the Kemi Oba culture, type 1: Uglovoe 1983, kurgan/grave 1. *Foll.* Häusler, Toschev [2009]. Key: 1 – a vessel; 2 – plan and cross-sections of the grave

stone slabs, the inner wall surfaces were covered in geometric ornaments painted with ochre.

In terms of stratigraphic position, size, burial forms and grave goods, stone cists resemble other Yamnaya culture graves. What makes stone cists different is the stone structure only.

North of the concentration of stone cists discussed above, associated with the Yamnaya culture, there are more features of this kind. Two are the northernmost 'Yamnaya' graves of this construction: Aleksandriya, kurgan 2, grave 1, and Voynovka (Korystivka), kurgan 16, grave 2 [Rassamakin, Evdokimov 2011].

In Aleksandriya barrow 2 was raised over grave 6 and the cromlech encircling the grave, probably still in the Eneolithic [Rassamakin, Evdokimov 2011: 80-89]. Into this original mound, grave 5 was sunk followed by the barrow enlargement. Into the enlarged mound, grave 1 was sunk. First, a large pit was dug (7 × 4.5 m), next, in its centre, a rectangular depression was made measuring 2.9 × 2.3 m, the bottom of which reached down 0.4 m below the pit floor. In the depression, a rectangular cist was placed, measuring 2.2 × 1.6 m, orientated E-W (Fig. 16). Its walls were made of seven granite slabs sunk into the ground 0.15-0.3 m deep below the depression bottom. It was found that the material came from deposits located 3 km away from the barrow [Rassamakin, Evdokimov 2011: 82, footnote 4]. Gaps between the slabs were sealed with fine stones. On a probably wooden cover, stone slabs rested. The grave chamber held the body of a single adult, lying supine, with the head pointing west, knees bent and legs having fallen to the sides. Both the human remains and cist bottom were sprinkled with ochre, especially profusely at the head. Underneath the skeleton, the traces of organic bedding and chalk powder have survived. Next, the barrow was extended further still by adding the third mound.

A trapezium-shaped cist from barrow 16, Voynovka (Korystivka) [Tupchienko 1993: 136; Rassamakin, Evdokimov 2011: 93], inside which a primary grave was found, stood on the surface of the ground and was orientated E-W. It measured 1.6 × 1.2-1.4 m and was 0.6-0.7 m high. Its walls were built of 1-2 granite slabs sunk 0.4-0.5 m deep into the ground. Gaps between them were sealed with fine stones. In the corners, obliquely to the cist axis, smaller slabs were placed. The inner wall surfaces were covered in geometric ornaments painted with ochre. The cist cover consisted of four granite slabs, with gaps between them smeared over with clay. The bottom was lined with organic bedding. The chamber held a child burial, lying supine in the flexed position, with the head pointing W. Grave goods included three flint flakes. The cist plates must have been worked in situ while being fitted, which is shown by stone waste lying at the outer side of E and SE cist walls [Tupchienko 1993: 136-137 and Fig. 59].

In the Rakhmanivka barrow discussed above, two cist graves were placed. This is not often encountered, but analogies can be found in other areas too. For instance, on site Vesnianoe, in the lower Boh drainage basin, the barrow contained

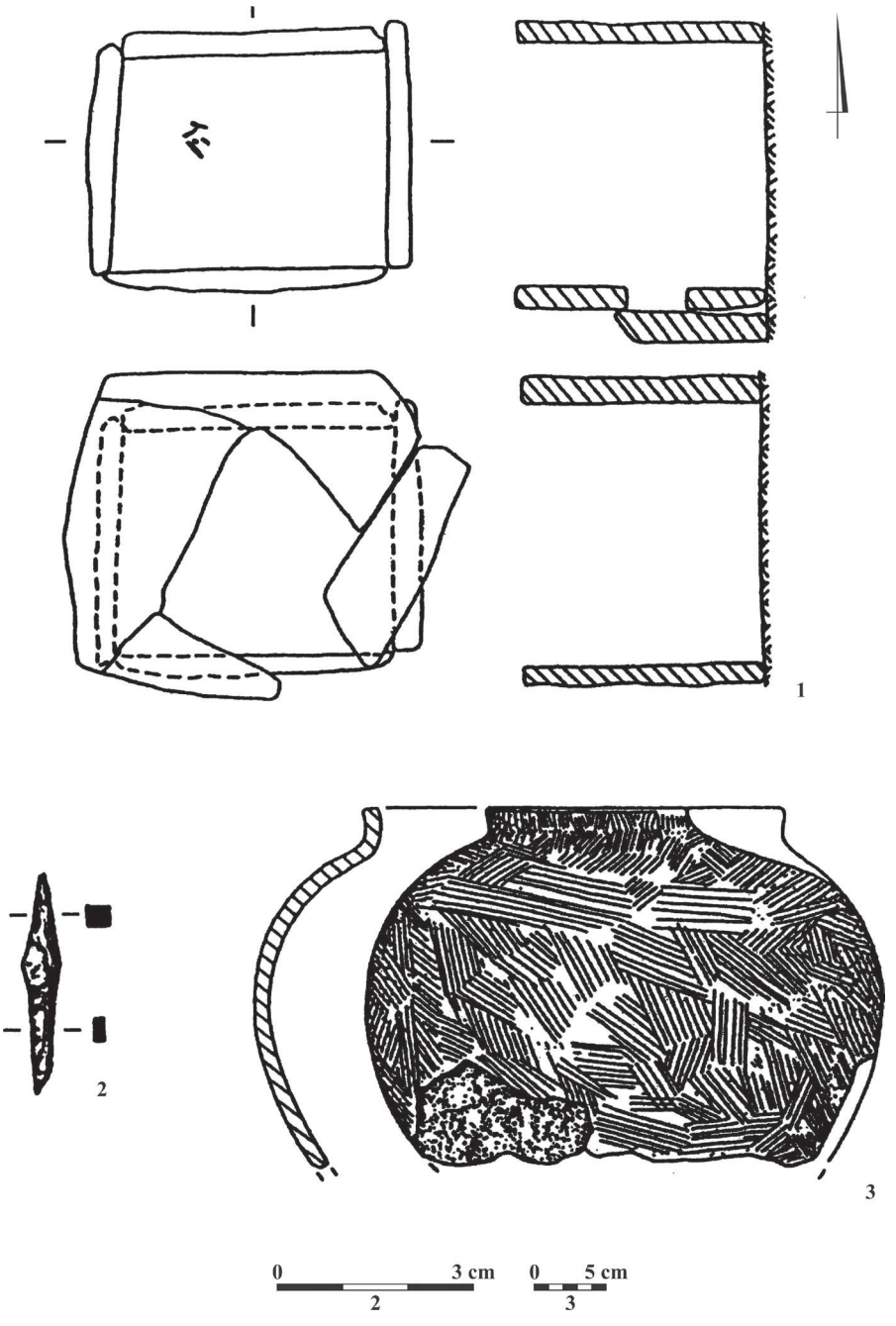

Fig. 18. Stone cist grave of the Kemi Oba culture, type 2: Vilino 1980, kurgan/grave 4. *Foll.* Häusler, Toschev [2009]. Key: 1 – plan and cross-sections of the grave; 2-3 – artefacts (2 – copper/bronze: 3 – clay)

three stone cist graves [Teslenko, Grebennikov 2002]. Except for the stone structure, other traits of the burials corresponded to the Yamnaya culture characteristics. In the stratigraphy of the barrow, all three cists fitted between the primary grave (the oldest), representing the Yamnaya culture, and later graves, belonging to this culture as well.

3.5. CRIMEA: KEMI OBA CONTEXT

Distinguished by A. Shchepinskiy, the Kemi-Oba culture, believed to be a separate entity by him until his death [Shchepinskiy 1963; 1966; 1971; 1985], is now the object of fundamental research, including above all the publication of sources, which have been lacking until recently. Owing to the work of G. Toschev, materials from old investigations have been published [Shchepinskiy 2002], including sources from the eponymous barrow Kemi Oba [Shchepinskiy, Toschev 2001]. Generally speaking, it follows from the ongoing discussion that the Kemi Oba culture should justifiably be included in the cultural-historical Yamnaya community [Toschev 2007: 59-93; Ivanova 2012: 101-109].

At present, Shchepinskiy's conception of the broad range of the Kemi Oba culture, extending across a vast expanse of the steppes from the Taman River in the east to as far as the mouths of the Boh and Dnieper rivers [Shchepinskiy 1985: 332] is not supported anymore. Some artefacts which the cited author included in the Kemi Oba culture are now considered in other cultural contexts [Toschev 2007: 63]. Other graves mentioned by Shchepinskiy have no documentation, thus there is no way to verify his assessments. To make matters worse, it is hardly possible to determine a reliable number of features, forming the Kemi Oba source base. Shchepinskiy [2002: 55] wrote about 491 graves, but in the opinion of Toschev [2007: 65 and Tab. VIII] one should limit the study to 45-50 complexes published since the 1960s [e.g. Häusler 1964; 1976; Stoliar, Shchepinskiy 1981; Gavrilov 1991; Koltukhov, Toschev 1998; Häusler, Toschev 2007]. On the map of the Crimea he published, there are 39 localities marked where stone and wooden cist graves were discovered [Toschev 2007: Fig. 24]. There are ten wooden cists and about 30 stone ones, but the number is growing owing to new discoveries [Haüsler, Toschev 2007; Gavrilov, Toschev 2012].

Most cists were discovered in the Crimean foothills. Some were found in original (primary) graves over which barrows were raised (Kemi Oba, Vilino-80 and Dolinka barrows), while others were revealed in graves sunk into the mound of an older kurgan (e.g. barrow 1 in Pionierskoe-94 and Krasnaya Zorka) [Toschev 2007: 65]. Usually, a barrow contained one cist, but there are exceptions, e.g. Kemi Oba, Vilino or Pionierskoe barrows [Shchepinskiy, Toschev 2001; Häusler, Toschev 2007].

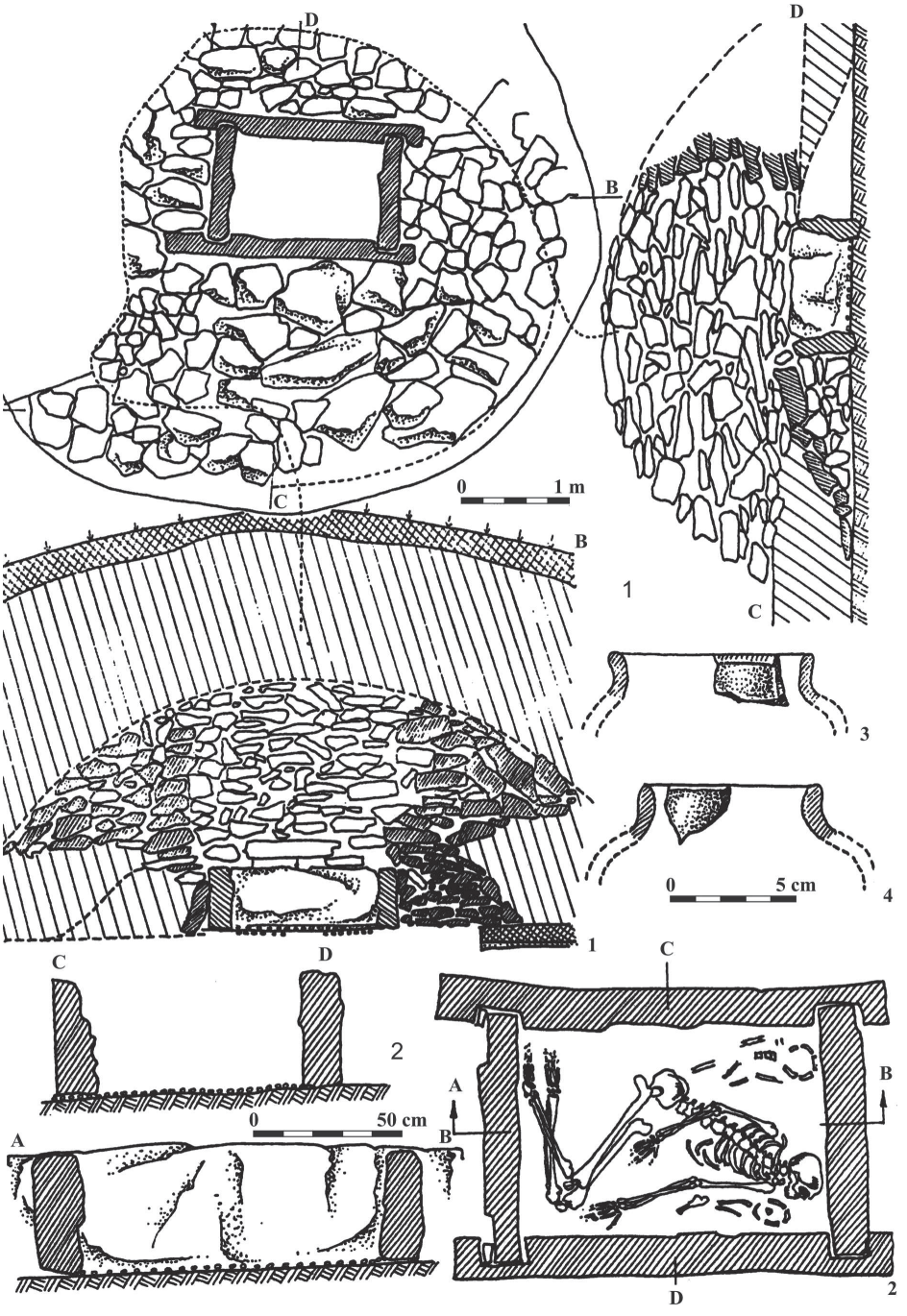

Fig. 19. Stone cist grave of the Kemi Oba culture, type 2: kurgan Kemi Oba, grave 1. *Foll.* Shchepinskiy, Toschev [2001]. Key: 1-2 – plans and cross-sections; 3-4 – vessels

There are three types of Kemi Oba cist graves [Toschev 2007: 65-67]: (1) a stone cist with a cover where cist wall slabs are sunk into the ground; (2) a stone or wooden cist, over which stones (blocks, slabs, etc.) were piled up and (3) a stone cist placed in an excavated pit and covered with a stone slab or wooden logs.

Type 1 cists (Fig. 17), to which 28 features were assigned, were placed on barrow mounds or on the original ground surface under a barrow. Cist walls were made of four to seven slabs. They were placed either upright or slightly inclined inwards. The cover was usually made of a single slab, less often of two. Cist inner dimensions varied; length between 1.0 and 1.8 m, width between 0.96 and 1.5 m, while height stayed below 0.85 m. Gaps between the slabs were sealed with fine stones and/or smeared over with clay. The cist bottom was most often earthen, although bottom slabs, either single or double, did occur. In 11 cists, their inner surfaces were covered with painted ornaments. Bodies were usually laid crouched on the left side, with the head pointing W. In three cists, ochre dust or lumps were recorded. These graves had hardly any goods placed in them. These were only clay vessels, which were found in two graves, and flint, stone, bronze and bone objects in single cases. An exception is the grave from Dolinka (barrow Kurban-Bayram) which contained copper and arsenical bronze weapons: a shaft-hole axe, chisel, adze, knife and a two-horned mace head.

Type 2 cists (both stone and wooden ones) are represented in 20 complexes (Fig. 18 and 19). A cairn, measuring in diameter from 5-7 to 10 m and being from 2.4 to 4.0 m high, constructed over the cist could be accompanied by other stone structures. The cists were of similar size to those of type 1. In this respect grave 4 from Vilino, stands out, which measured 2.12 × 1.68 m as well as grave 6, barrow 6, Simferopol bay area, which measured 2.45 × 2.35 m. The dead were laid in the flexed position on their back (their heads pointing NW or NE), less often on the left side (head pointing W or SW). In grave 14, Vilino-83, the body was dismembered. Grave goods were rather meagre: two stone shaft-hole axes, stone grinder, flint objects, clay vessels and an indeterminate clay object.

Type 3 cists were recorded nine times [Toschev 2007: 67]. Pits in which a cist was placed were excavated in earth or – less often – in limestone or marl. Chamber bottoms are sometimes covered with a pebble layer of a varied thickness. Such graves yielded three vessels, bronze and flint goods, animal bones, etc.

In sum, cist grave inventories are richer than those of other Yamnaya culture graves, but the categories and object forms are the same.

In stone and wooden cists, inner wall surfaces are often ornamented. Usually, these are geometric motifs painted using a red, yellow, black or white colorant. Such ornaments were recorded in 36 graves in the Crimea, most often belonging to type 1, less often to type 2 [Toschev 2007: 78].

The stratigraphic situation of Kemi Oba cist graves and other Yamnaya culture burial forms varies in the Crimea. It was shown that cists could be older that Yamnaya culture graves and vice versa [Toschev 2007: 77-78].

One conclusion that can be drawn is that in principle various Yamnaya community grave forms, including stone cists and pit graves, were contemporaneous. This thesis, however, is not founded on any archaeometric data; the deficit of radiocarbon age determinations concerning Kemi Oba features is very strongly felt in this regard.

4. STONE CIST GRAVES BETWEEN THE CARPATHIANS AND CRIMEA: SIMILARITIES AND DIFFERENCES

The review of the forms of stone cist graves on the forest-steppe and steppe between the Carpathians, Crimea and Dnieper in the 4th and 3rd millennia BC reveals that these features are similar in some aspects but also that they differ significantly. The list of similarities and differences presented below is open-ended and as such is a point of departure for further studies as part of a research project to be pursued in the near future.

As similar and often identical traits of stone cist graves discussed above can be considered, in the first place, certain formal and technical properties of such structures such as:

- basically their rectangular shape (rarely trapezium-shaped, very rarely square)
- an effort taken to close the chamber space (sides, bottom, cover) and isolate it from the surroundings, which can be seen in the sealing of gaps between structural elements
- an effort to stabilize the structure seen in the propping-up of walls or their slight inclination inwards
- maintenance of standard sizes: features 1-2 m long and 0.7-1.7 m wide dominate; however, these dimensions are occasionally exceeded in all areas discussed above.

Another significant similarity is the placing of uncremated bodies in cist graves (single cases of cremation occur in the GAC).

In turn, differences can be divided into two groups related either to the availability of raw materials or cultural patterns prevailing in specific communities.

The differences in building material appear to be an effect of its availability in nature. This is true of both the material as such (granite, sandstone, limestone, etc.) and its type (slabs or blocks) and the number of elements making up walls, the bottom and cover. Single cases of the detailed identification of raw material and its deposits suggest that locally available materials were used that were found within the radius of several kilometres from the grave construction site (*see* the example from the Inhulets area in Aleksandriya, cited in 3.4 above). Building material sets

apart especially cist graves from Volhynia, which were built mostly of rock blocks. It is also in this region that features lacking a stone bottom and cover occur the most often. Although, it cannot be ruled out that wood was used to cover graves and that it had not been preserved until the time of discovery.

The traits depending on the cultural patterns prevailing in the communities building cist graves seem to include the following:

- grave location and orientation, as well as connection with other structures
- the sequence of pre-funeral, funeral and post-funeral actions, including for instance the manner of cist use, spatial organization in the grave chamber, deposition of the body and accompanying objects, etc.

Specific differences concern the following aspects:

- placing cists on the ground surface or below it (in pits)
- connecting a cist to a barrow (building a mound over a cist or sinking it into an older barrow) is rather common on the steppe; however, there are exceptions: cists on Eneolithic flat cemeteries representing tradition II according to Rassamakin; connections to a barrow are absent from GAC contexts
- accompanying of a cist grave by other stone structures (curbs, circles – cromlechs)
- placing of cairns over cists or covering them with stone mounds
- ornamenting of the inner wall surfaces of chambers or not
- maintaining the possibility of entering the chamber or its permanent sealing off
- varying the number of the dead interred in a grave (single individual, two individuals, a larger number of individuals)
- arranging of bodies (keeping anatomical order or not)
- positioning of bodies (extended supine, flexed supine, crouched on a side, etc.)
- preparing of an underlayer (mats, beddings, etc.) on which the body was laid, or not
- using of colorants (chiefly ochre but also others) or not
- varying of grave goods (clay vessels, tools and weapons made of flint, stone, bone or metal, ornaments-amulets or emblems, animal meat, etc.).

Already now, before meticulous analyses are over, some general observations can be made. First, the prevalence or even outright domination of certain traits in specific cultural contexts is noticeable. From this point of view, the greatest differences emerge between GAC stone cist graves and those known from the steppes and Crimea. Thus, in terms of the number of the dead, the former clearly stand out. 30 to 70 per cent contained the remains of two or more dead individuals, with 20-30 per cent of features holding more than three bodies. It was also in these graves that the non-anatomical order of human remains was frequent. Whereas in the steppe zone and Crimea, graves containing more than two bodies are rare (*see* the example from Baratovka dated to the Eneolithic discussed above) and anatomical order absolutely dominates. In turn, on the steppes and in Crimea, cist graves were most often

located in connection to a barrow (underneath it or in its mound). By contrast, no such connection is observed in Volhynia, Podolia and the Moldavian Upland, where cist graves were usually placed below the original ground surface. Moreover, on the steppes, in both Eneolithic cists and those associated with the Yamnaya circle, the remains of underlayers, beddings or mats, on which a body had been laid, were often identified. No such observations were made in respect of GAC graves. It is also to the steppes and Crimea that other elements of stone sepulchral architecture are limited, so characteristic of the steppe Eneolithic. Likewise, the custom of constructing cairns or stone mounds over cists is confined in principle to the Crimea only. Next, covering inner chamber walls with ornaments is a distinct characteristic of the Yamnaya circle, especially the Kemi Oba culture, whereas it is very rare in Eneolithic features. Practically all GAC graves contained some grave goods, with the most typical assemblage containing a clay vessel, flint axe, bone or amber ornament/emblem. By contrast, in the steppe zone and Crimea, the absence of any grave goods is the rule and features containing any are by far in minority. Only very rarely do graves hold a diversified and multi-component assemblage of grave goods (*see* features discussed above from sites Starye Beliary and Alkaliya – 'Gostra mogila' (part 3.3), Zelenyi Hay on the Inhulets (part 3.4) or Dolinka (part 3.5).

In this context, it is worthwhile to comment on the relationship between stone and wooden cists [Toschev 2002]. In terms of design, these features are similar in size but different when it comes to material used to build them. However, it must have taken more time and effort to make a stone cist than a wooden one and the difference in durability between them was considerable. In theory therefore, the collective effort of people involved in the construction of stone and wooden features may have differed, likewise their social valorisation. However, the examples of stone and wooden cists from the Crimea, specifically their co-occurrence in barrows, seem to suggest a radically opposite phenomenon, namely a raw-material substitution, with the high valorisation of the cist grave itself remaining unchanged.

5. THE IDEA OF STONE CIST GRAVES IN THE 4TH AND 3RD MILLENNIA BC BETWEEN THE CARPATHIANS, CRIMEA AND DNIEPER: CONCEPTIONS TO DATE AND RESEARCH OBJECTIVES

The questions related to stone cist graves between the Carpathians, and the Dnieper and Crimea, or – more broadly – between the Carpathians and Caucasus, have been discussed by many researchers since the 1920s and 1930s, above all in the context of the origins and dispersion of this peculiar sepulchral form. The advanced conceptions were concerned with its developmental correlations or inde-

pendence, directions of inspirations and the range of possible adaptations in specific cultural milieus. For many years, the debate focused on arguments in favour of the existence of genetic ties, joining cist graves from central and eastern Europe with those from the Crimea and Caucasus (however, in various configurations) and considering them in the context of the history of Indo-European peoples. However, other opinions could be heard as well, stressing the peculiarity of cist graves in individual areas; recently this trend has been gaining momentum. Earlier approaches stand exposed to revision as another research trend gains ground, contesting previous taxonomic proposals in general and questioning the grounds for distinguishing the Kemi Oba culture in particular (*see* part 3.5 above).

5.1. A REVIEW OF CONCEPTIONS TO DATE

Generally speaking, there are three principal positions on the origins and dispersion of the idea which materialized in stone cist graves. The positions, to put it simply, can be referred to as eastern, western and local.

The conceptions arguing in favour of the eastern origins of stone cist graves emphasize the chronological priority of Caucasian and steppe features over those found in the forest-steppe and central Europe [e.g. Childe 1925; Forssander 1933]. The foremost exponent of this conception was Marija Gimbutas [1997a; 1997b] who held that stone cist graves in central Europe (especially features in barrows) were an effect of the second invasion wave by 'Kurgan cultures', triggered off by the expansion of the Maikop culture of the Caucasus. This thesis forms an element of Gimbutas' overall conception, according to which stimuli coming from the circle of steppe cultures (referred to by her by the overall name of 'Kurgan culture') were the prime mover of cultural transformations in Europe in 4400-2800 BC [Gimbutas 1997a; 1997b]. Steppe stimuli took the form of three migration waves – or 'invasions' rather – of 'Kurgan culture' populations: (1) ca. 4400-4200 BC, (2) ca. 3400-3200 BC and (3) ca. 3000-2800 BC. The source of wave 2 was the Maikop culture, to be precise, Mikhailovka I, considered its early phase. According to the cited author, a part of the Maikop culture was also Kemi-Oba. The steppe populations supposedly redrew the cultural map of central and south-eastern Europe. A cycle of new cultures took shape then with a substantial share of 'Kurgan culture' tradition such as Usatovo, Ezero, Baden, Coţofeni, as well as the GAC. In the opinion of Gimbutas:

> There is a complete congruence between the burial rites of the Globular Amphora people and those of the Kurgans of the Mikhajlovka I stage of the Maikop culture in the North Pontic region: mortuary houses built of stone slabs, cromlechs, and stone stelae, engravings on stone slabs, ritual burial of horses, cattle and dogs; also human

sacrifice in connection with funeral rites honoring high-ranking males [Gimbutas 1997b: 283].

Advanced by Gimbutas, the conception of steppe invasions, supposedly stimulating the transformations of European societies in the 5th-3rd millennium BC, met with strong criticism [e.g. Häusler 1996] and is no longer supported. The latest research into relationships between central and south European, and steppe cultures has produced far more nuanced and less explicit results [e.g. Mallory 1989; Anthony 2007; Hansen 2010].

In recent years, an Ukrainian archaeologist, M. Bandrivskyi [2007a; 2007b] has attempted to show that cist graves in Podolia and the entire Podolia GAC group originated in the steppes. He cites structural similarities between Podolia and steppe cists, ignoring however, their differences (*see* part 4 above) and grievously erring in his analysis of both grave goods (especially pottery) and chronological issues.

The second group of hypotheses assumes that central European patterns (or even population groups), originating with the GAC circle or the Funnel Beaker culture, contributed to the rise of Black Sea and Caucasus groups.[5] This idea was aired already in the early 20th century [e.g. Spitsyn 1903]. Äyräpää [1933: 121] suggested that GAC populations, constructing megalithic tombs in Volhynia and Podolia, could be linked to the builders of the so-called north-Caucasus dolmens. These views were revived in the 1970s and have been rehashed to this day. The most extreme position on the question under discussion was adopted by N. Nikolaeva and V. Safronov [1974], who assumed a direct connection between Novosvobodnaya-type artefacts in the Caucasus with the GAC. The cited authors stressed the absence of any genetic link between Novosvobodnaya and Maikop. Considering megalithic graves the most important trait of the Novosvobodnaya type (associated by them with the 'Dolmen culture' of the northern Caucasus), they looked for the closest analogies to them in the Kemi-Oba and Usatovo cultures. Since, however, these units, in their opinion, were foreign to earlier local traditions, they considered the GAC Volhynia-Podolia group to have been the ultimate source of the megalithic rite. It was from there that the migration of people allegedly started who, having taken part in the engendering of new Pontic (Usatovo) and Crimean (Kemi-Oba) groups, ultimately reached the Caucasus and left there their footprint in the form of Novosvobodnaya-type features and northern Caucasus dolmens [of the Kuban-Terek culture according to Nikolaeva 1981]. Despite the fact that Nikolaeva and Safronov's conception was considered highly controversial, or even utterly unfounded already many years ago [Maleev 1980; Sveshnikov 1983: 20; Markovin 1990; Häusler 1994; Munchaev 1994], these theses have been recently elaborated on [Nikolaeva 2011].

[5] The possible role of Mediterranean stimuli in the origins of the stone mortuary architecture of the Caucasus is beyond the scope of the present discussion [Trifonov 2013].

In the 1990s, a heated debate was sparked off by the hypothesis advanced by A. Rezepkin, according to which the Novosvobodnaya type not only genetically differs from sources associated earlier with the older stage, but is also contemporaneous with them [Rezepkin 1991a: 189-197; 1991b]. This author believed that the rise of the Novosvobodnaya type was related to the functioning of a so-called block of cultures with black-glossy pottery in the lands from central Europe to the north-western Caucasus [Rezepkin 1987: 29-30; 1991a: 173]. The block, taken to be a cultural trend deriving from central Europe, would include the Mikhailovka I culture, while Novosvobodnaya-type assemblages would represent its easternmost segment. The central European link of the block was supposedly the Funnel Beaker culture with some share of the GAC [Rezepkin 1987: 29; 1991a: 173]. Rezepkin's hypothesis, in particular the position of Novosvobodnaya-type assemblages in the life of the Maikop culture and the role of central European communities in the stimulation of cultural processes in the North Pontic Area and Caucasus, has been strongly opposed [Munchaev 1994; Häusler 1994].

The third group comprises conceptions according to which stone cist graves or – more broadly – 'megalithic' grave architecture had local roots and was an outcome of the evolution of cultural structures in particular areas (forest-steppe, steppe, Crimea, Caucasus), hence it appeared there independently [e.g. Rassamakin 1991; Häusler 1994]. A certain adjustment of the conception involves a distinction between 'central European' cist graves (i.e. related to the GAC) and 'eastern European' ones linked to Kemi-Oba and Caucasian groups or possibly to the steppe Eneolithic (in the Mikhailovka I version). Among the latter features, developmental correlations are considered [e.g. Burov 2007; Toschev 2007; here older literature].

5.2. RESEARCH OBJECTIVES

In spite of the long debates, which were briefly outlined above, a satisfactory pool of fundamental findings is still unavailable. This is largely due to the dispersion of research projects and the absence of systematic investigations employing the latest research methods. A matter particularly strongly felt, the deficit of reliable determinations concerning the absolute chronology of stone cist graves from the Crimea and the steppes contrasts with a large series of radiocarbon determinations for GAC features in Volhynia, Podolia and the Moldavian Upland. However, the above series should be systematically expanded nonetheless. Abandoning typochronology in favour of chronometry should be reflected in the systematics of stone cist grave traits in the area under discussion. It is highly desirable that

bioarchaeological data be introduced into the debate. They have been completely left out so far despite the fact that archaeogenetic data in particular could be very helpful.

An optimal solution would be to concentrate research on selected areas, crucial for the study of relationships between central and eastern European communities, and – looking further afield – Caucasian ones, in the forest-steppe and steppe zones. Such areas may include the lands on the Dniester, Prut and Seret rivers and the drainage basin of the Inhulets. In the drainage basins of these longitudinally flowing rivers, crossing both the forest-steppe and steppe, the presence of the patterns that could be conventionally called 'eastern' and 'western' was observed already earlier, as well as diverse varieties of cultural syncretisms [Rassamakin 2004; Szmyt 2011; Ivanova 2012]. It is recommended that, on the one hand, old source complexes be reanalyzed and on the other, new sources assemblages be obtained, offering an opportunity to fill the collective hiatus in our knowledge of prehistoric cultures mentioned earlier.

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INSPIRATIONS AND IMPORTS FROM BRONZE AGE PONTIC CULTURES IN THE DEVELOPMENT OF COMMUNITIES LIVING BETWEEN THE WIEPRZ AND HORYN RIVERS FROM THE 3RD/2ND TO THE MIDDLE OF THE 2ND MILLENNIUM BC

The beginnings of the Bronze Age in the present-day Polish-Ukrainian borderland are related to the rise of the Mierzanowice culture (including its eastern, Gródek-Zdołbica group) and the Strzyżów culture that took shape here probably in the late 3rd and early 2nd millennia BC [Kadrow, Machnikowie 1992: 91]. The Strzyżów culture, occupying a relatively small and compact area between the Wieprz and Horyn rivers, developed where various cultures and impacts met. Hence, it is a successor, in a way, to these varied traditions.

The state of research into this separate unit, which was distinguished relatively late [Gardawski 1959: 118-119; Sulimirski 1959: 233] is still highly unsatisfactory and, as such, does not facilitate any analytical work. Since the publication of the first monograph [Głosik 1968] already over 40 years ago, new settlements and even a greater number of cemeteries [Ślusarski, Ślusarska-Polańska 1989; Banasiewicz 1990] have indeed been uncovered, but no site has been thoroughly investigated. The authors of later consolidating works on the Strzyżów culture [Machnik 1978; Sveshnikov 1990; Taras 2007a] take into account more recent data and make various amendments to the information given in the first monograph, for example concerning the culture's territorial range, and make claims about its origins, cultural influences it was subject to and various aspects of life pertaining to its populations. Relatively new publications by Barbara Bargieł [2006b] and Jerzy Libera [Bargieł, Libera 2005a] are worth noting as they thoroughly analyze various aspects of funerary rites, redefine older sources and systematize individual artefact categories in grave assemblages [Bargieł, Libera 2004]. The recent past has seen the discovery of more burials in the Lublin Province; one of the cemeteries, Rogalin Dolny, site 15, Hrubieszów District, is being systematically excavated – so far over

a dozen features have been investigated.[1] Happily, in Ukraine, too, both the latest discoveries and analytical works are published. [Okhrimenko 2006; 2007; 2010; Okhrimenko, Skliarenko 2010].

A serious, even lamentable shortcoming is the fact that no radiocarbon dates have been published, such measurements having been made notwithstanding.

The relatively small territory of the Strzyżów culture extends on the Volhynia Upland (as far as the Horyn in the east), the eastern end of the Lublin Upland (as far as the Wieprz in the west) and in Volhynia Polissya. Single dispersed sites were found also in Lublin Polissya (northernmost sites are found in the vicinity of the town of Włodawa). The most condensed Strzyżów culture settlement in Poland, however, was found on the relatively small Grzęda Horodelska – slightly over 170 sites out of the total number of approx. 250 located on the West Volhynian Upland.[2] It is here that an absolute majority, i.e. about 20 identified and partially investigated cemeteries are found supplemented by more than 10 permanent settlements that have been excavated. In total, we know in Poland of at least 22 sepulchral sites that held slightly above 100 graves. From Ukraine we know of more than 10 sepulchral sites, but the number of graves is hard to estimate, relying on available publications [Bargieł 2006b: 93].

From among Bronze Age communities, Strzyżów culture populations were the most demanding as far as their habitat is concerned. A high concentration of settlement on Grzęda Horodelska had, however, far-reaching and permanent consequences for the original vegetation, specifically its advanced degradation. Local settlement clusters, and microregions no doubt too, show stability but with a high site density and a low diversity of most of the available materials, it is hardly possible to reconstruct the ranges of individual microregions in most cases. The situation is completely different in the other mesoregions of the Volhynia Upland. Already the southern part of the Hrubieszów Basin is a peripheral zone for the Strzyżów culture while Grzęda Sokalska, and even more so Pobuże Basin, are only areas of short-term exploration or settlement. In neither of the latter two regions, have any permanent settlements or cemeteries been recorded, while in the Hrubieszów Basin such features are known only from its northern edge.

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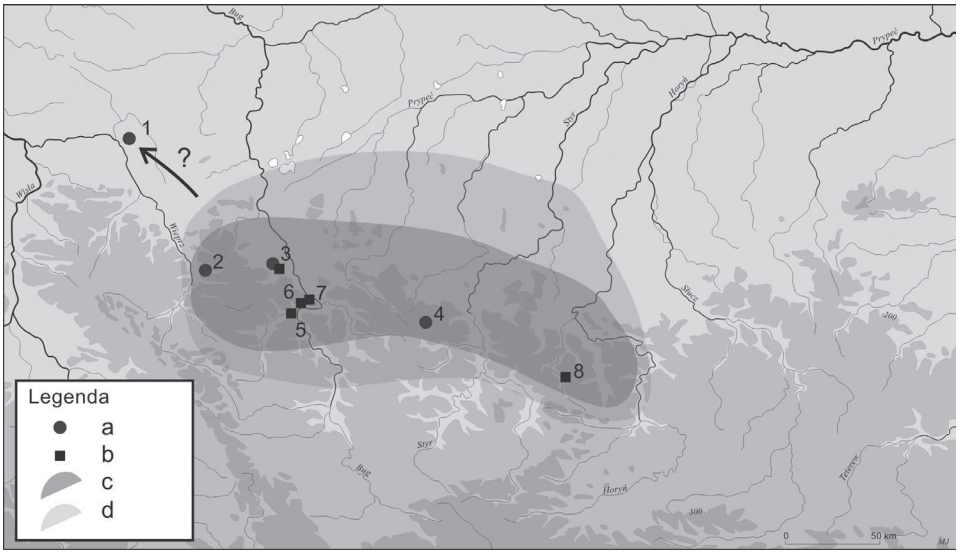
[1] The excavations are headed by Anna Hyrchała and Bartłomiej Bartecki of the Stanisław Staszic Regional Museum, Hrubieszów. The results are regularly published on annual reporting conferences in Lublin and mentioned in the *Wiadomości Konserwatorskie Województwa Lubelskiego* [Banasiewicz-Szykuła *et al.* 2011: 31; 2011: 29-30; 2012: 35-36; 2013: 29-30]. Moreover, damaged graves were investigated in Horodło, site 12, Hrubieszów District [Koman 1994]; Horodysko, site 13, Chełm District [Bargieł 2006b] and possibly in Janki Dolne, site 11, Hrubieszów District [Koman, Niedźwiedź 1998; Niedźwiedź 1999].

[2] On Grzęda Horodelska one site is found on 1.5 sq. km on average. In the Hrubieszów Basin, 54 sites were discovered and 20 others on Grzęda Sokalska; we do not know now of any grave assemblages from these areas. In east central Poland, the number of sites is about 300 [including all verified data supplied by the Archaeological Map of Poland]. There are no accurate verified data from Ukraine; the number of sites can be estimated at 70--100, judging by the information that has been published [Sveshnikov 1990b: 68, Fig. 17; Okhrimenko, Skliarenko 2010].

The presence of various eastern cultural components, notably Caucasian or Pontic, in the Strzyżów culture milieu, including its origins, has been discussed in the literature for a long time [Głosik 1968: 65-66; Machnik 1978: 78-79; Sveshnikov 1990: 74; Taras 2006: 254; 2007b: 179-184]. Eastern European influences, including imports, were noticed also in other epi-Corded groups, and although many of them have been lately verified and rejected [Kadrow 1998], there is still a large group of artefact categories, their specific stylistic traits, and forms of ritual behaviour that can be considered in this context.

Moving to the 'Strzyżów' funerary rites, it can be said that they differ from those of other Corded and epi-Corded communities that either immediately preceded the Strzyżów culture in its territory or bordered on it. However, there is a similarity (coincidental?) in body arrangement with the burials of the Catacomb culture, notably its western branch [Kaiser 2003: 39-43; Ślusarska 2006: 76-79]. Extended burials in some cemeteries represent 60-70 per cent of all burials (in the Ingul group: about 65% on the average). In the Strzyżów culture, extended burials make up 90 per cent of all burials. Naturally, there are also differences, as for instance, an almost total absence of kurgan graves [Sveshnikov 1990: 69] and a total absence of niche ones from the 'Strzyżów' territory. Moreover, in the circle of the Catacomb culture the orientation of bodies with respect to the points of the compass is much more varied [Ślusarska 2006: Fig. 14]. Keeping in mind that the Catacomb culture is basically older than the Strzyżów one, suggesting any close relations may be controversial; nevertheless, the final phase of the former, specifically its western branch, extends to the early 2nd millennium BC, making it thus synchronous with the inception of the Strzyżów culture [Kaiser 2003: Fig. 26; Telegin *et al.* 2003]. It must be remembered too that the archaeological dating of the latter is only approximate as it is based on stratigraphic data and the comparison of inventories with the artefacts of mainly the Mierzanowice culture. In addition, some doubts may be raised by the large distance separating the borders of their respective territories, i.e. the fact that, as far as we can tell, they did not abut, as it were. However, such distances were easily covered by shepherds as is evident from many long treks in the course of history. This is borne out by archaeological and historical sources.

Similarities between Strzyżów and Catacomb artefacts are observable also with respect to pottery. They are similar in their morphology (vessels with broad orifices and bottoms, and thickened rims are popular in both cultures) and, especially, a special surface finish (deep, intensive and regular brushing). These issues were discussed in greater detail in an earlier work [Taras 2007b: 180-181]. To a lesser degree, the similarities concern certain ornament motifs (herringbone, chevron, zigzag – they are not frequent, however, in the Strzyżów culture). The ornaments of Strzyżów culture pottery find analogies in those encountered in the adjacent cultures of both forest and forest-steppe zones, as well as in more distant steppe cultures.



F i g . 1. Location of graves with flint points (1-4) and bone or shell buckles (3, 5-8); a – flint points; b – buckles; c – Strzyżów culture compact settlement; d – dispersed settlement, 1 – Ostrówek, Lubartów District; 2 – Horodysko, Chełm District; 3 – Raciborowice Kolonia, Chełm District; 4 – Vesele, Volyn Oblast; 5 – Gródek, Hrubieszów District; 6 – Husynne Kolonia, Hrubieszów District; 7 – Hrebenne, Hrubieszów District; 8 – Zhorniv, Rivne Oblast. Map drawn by M. Juran and S. Żórawski

Far harder to trace are the possible connections of Strzyżów flint manufacturing with other areas. A case in point is the question of flint points. Most researchers believe that the centre of their mass manufacturing was located in Volhynia [Libera 2001: 107-112; Bargieł, Libera 2004: 180-184] whence they were exported to adjacent areas and further away. Their morphology is quite varied and, as Jerzy Libera showed, usually closely reflects the needs and tastes of a given community [Libera 2001: Fig. 37-38]. Strzyżów culture grave inventories contain only four points, all made of Volhynia flint (Fig. 1). Two (an oval and a rhomboid with a straight base) were found in graves in Raciborowice Kolonia, site 2, Chełm District, two others (of the same varieties] in a grave in Horodysko, site 13, Chełm District[3] and in Vesele, Volyn Oblast, Ukraine [Bargieł, Libera 2004; Okhrimenko, Skliarenko 2010). Similarly shaped artefacts come from assemblages of unclear cultural attribution (Ostrówek, Lubartów District) or are stray finds from various regions, including the territory of the Strzyżów culture. So small a number of Strzyżów culture points prevents us from discussing any technical details of their production and it is this aspect that appears to be the most important in tracing the place of origin of an object, i.e. in locating the workshop it came from. Morphologically, however, points

[3] The materials are being processed; I owe this information to Jerzy Libera.

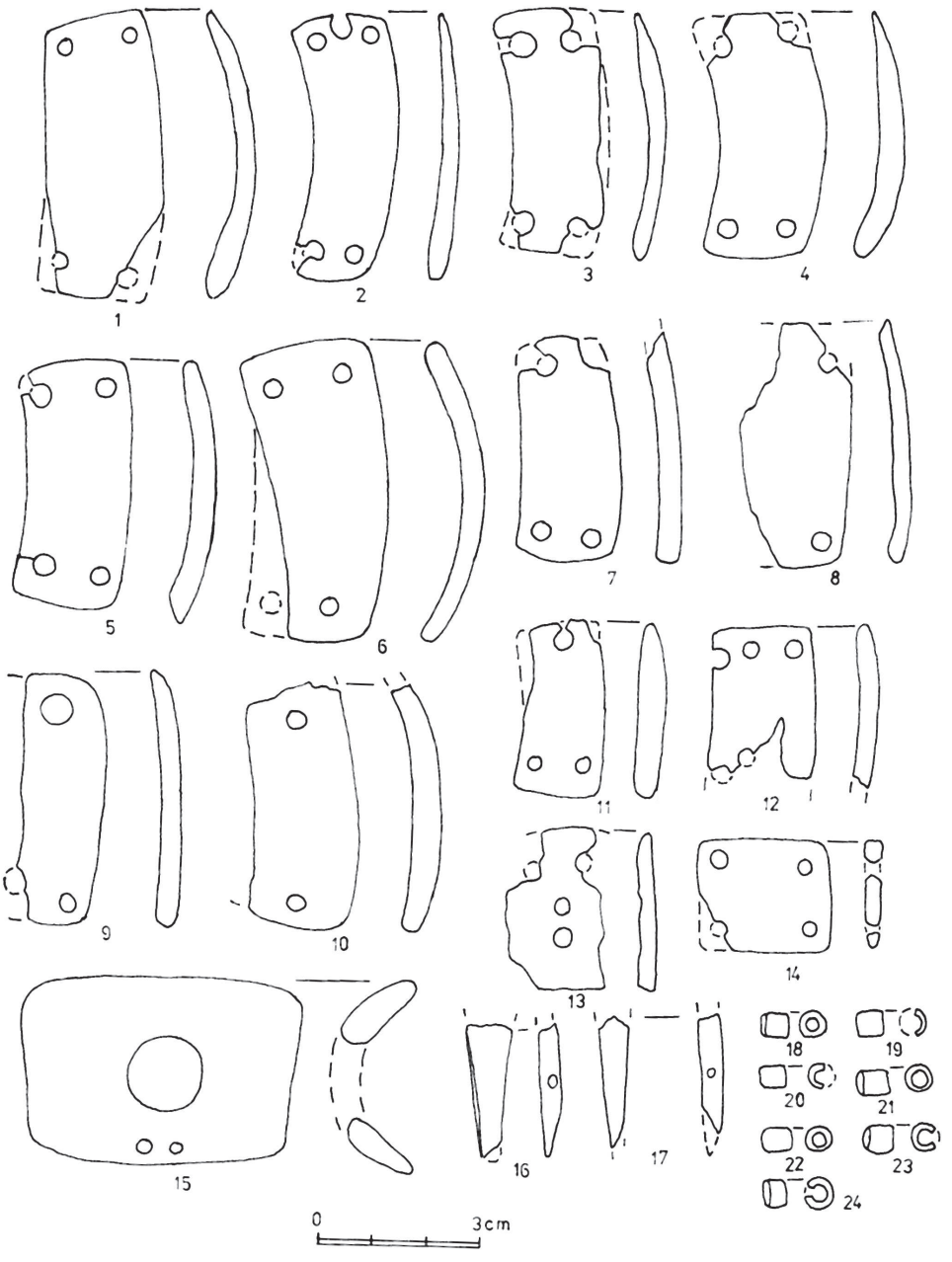


Fig. 2. Raciborowice Kolonia, site 1 – some grave goods from grave 1. Bone (wild-boar tusks) and horn belt elements (1-17) and faience beads (18-24). [*after* Ślusarski, Ślusarska-Polańska 1989]

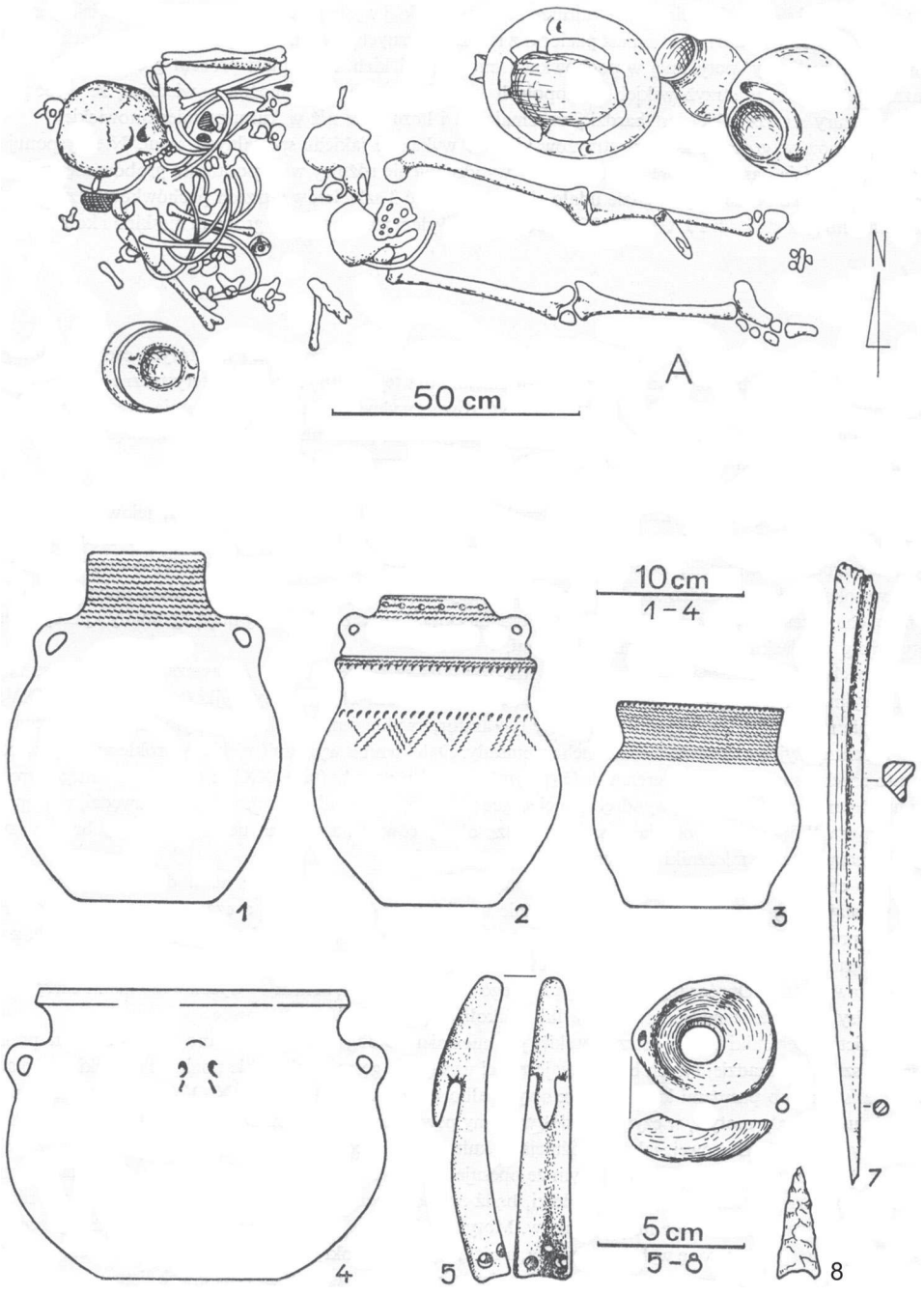


Fig. 3. Gródek, site 1C – grave 3. [*after* Głosik 1958]

close to the 'Strzyżów' kind of finds can be discovered in various eastern European groups, beginning from the forest zone (Volosovo and Middle Dnieper cultures) and ending with the steppe zone [Catacomb culture; Klochko 2001b: Fig. 34, 41, 43; Bunyatyan, Samolyuk 2009: Fig. 8].

In the Strzyżów culture environment, fine metal (copper) ornaments, as well as faience ones, were quite popular. This is borne out by grave inventories. The shape of such objects sometimes imitates more general trends but their origin is basically local as shown by stylistic details and laboratory analyses [Kadrow 2000; Robinson *et al.* 2004]. In this case, local manufacturing was no doubt a response to a high demand for attractive goods, frequently of a prestige nature, coupled with too small a purchasing power. Large metal objects are, however, few. In this context, a mention may be made of the hoard from Stubło (vel Steblivka), Rivne Oblast, which comprised, among others, massive shaft-hole axes of the Caucasus type. In the Early Bronze Age, the fashion for them spread across eastern and central Europe. Some of them (in particular the oldest) were no doubt imports from the northern Caucasus. Later, many local workshops emerged which manufactured such shaft-hole axes, for instance in the Carpathian Basin [Machnik 1987: 28-29]. Thus, the origin of the goods from Stubło is debatable as well [Klochko 2001b: 128-130; Klochko, Kośko 2009: 280-283]. As an import one can also consider the find of a dagger from Strzyżów, Hrubieszów District, which possibly came from a grave [Gedl 1980: 40-41, Tab. 11: 70] and which has close analogies to type-B arsenic bronze daggers characteristic of Catacomb culture goods [Kaiser 2003: Fig. 51, Karte 16; Taras 2007b: 183-184].

Strzyżów culture inventories comprise also, but rather few, other copper objects, e.g. a damaged copper disc-medallion from Raciborowice Kolonia, site 2 [Ślusarski, Ślusarska-Polańska 1989: Fig. 16:9] and bones, notably pipe beads [stray finds from settlements and cemeteries – Głosik 1968: 56; Ślusarski, Ślusarska-Polańska 1989: Fig. 16:11], which are characteristic of Pontic steppes [Kaiser 2003: Fig. 56, Karte 19, 26].[4]

Next to such clear references of Strzyżów culture sources to Catacomb circle traditions, debatable as already mentioned because of the dating and location of the units in question, as a surprise may come the absence of any closer connections to the milieu of the Mnogovalikovaya pottery culture. The sites of the latter were identified after all on the Volhynia Upland, on the right bank of the Bug River [Sveshnikov 1990: 74], and the two units are synchronous. There are also instances when the pottery of the two cultures co-occurred on a single site [Sveshnikov 1990: 71-72; Zlatohorskiy, Bardetskiy 2010]. Possibly such ties are suggested by the rare specimens of 'Strzyżów' vessels, bearing on their bellies ornaments of multiple incised rolls (Pidhaytsi, Volyn Oblast). The clearest associations with the circle of the

[4] From Ukrainian Volhynia we also know of over a dozen stray finds of fabricators – Hryhoriy Okhrimenko [2010] claims that they come from the circle of the Catacomb culture.

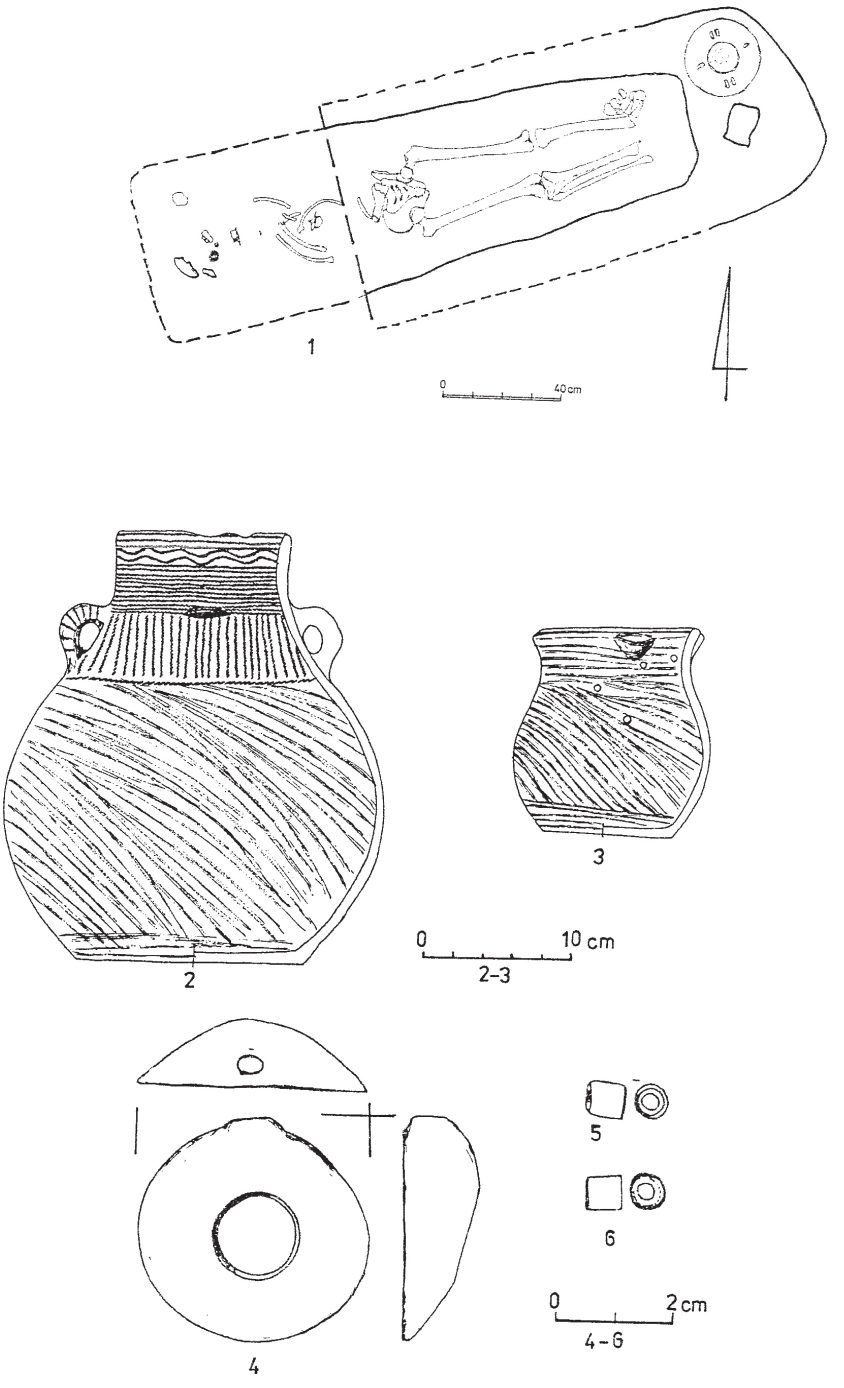


Fig. 4. Husynne Kolonia, site 6, grave 5. [*after* Koman 1987]

Mnogovalikovaya pottery culture are evoked by disk buckles made of bone, horn, shells, soft stone and other materials [Otroschenko 1998: 113] and which are among its basic identifying markers (over 500 finds). They are usually round or oval [Toschev 1998: 119-120]. The grave inventories of the Strzyżów culture contain several such artefacts (Fig. 1). One of them, found in Raciborowice Kolonia, site 1 (grave 1), differs in shape from those mentioned earlier (Fig. 2). It is a slightly trapezium-shaped horn plate, crescentic in profile. It has a large central perforation and two small ones close to one side. The buckle was an element of a man's belt clad with wild-boar tusk plates. Three other artefacts made of shell are published as pendants. Their shape, however, resembles that of 'Mnogovalikovaya' buckles. The artefacts were recovered from graves in the following localities: Gródek, site 1C (grave 3 – male, Fig. 3), Hrebenne, site 34 [grave 1 – damaged skeleton, indeterminate sex; Bargieł 2006b: Fig. 11:7] and Husynne Kolonia, site 6 (grave 5 – female, Fig. 4), all in Hrubieszów District. One more similar artefact comes from Husynne Kolonia, site 7 [damaged grave, the sex of the dead individual cannot be determined; Bargieł 2006b: Fig. 11:6]. This object, however, does not have a central perforation but only two small ones close to its edge; thus it may not have been an element of a belt. A bone buckle was also found in a kurgan grave in Zhorniv, Rivne Oblast [Sveshnikov 1990: 72]. The researchers working on the Mnogovalikovaya pottery culture [Otroschenko 1998] stress that these objects spread together with light war vehicles. Some of these artefacts were cheekpieces – elements of a horse harness – while others were elements of a man's belt (of a chariot driver). It is still a mystery whether the buckles from Strzyżów graves can be treated in the same way in the symbolic and social context.

The question of a potential eastern impact, its scope and character, on the Strzyżów culture environment calls for considerable analytical work. It is necessary, above all, to thoroughly revise materials from older investigations in Ukraine. Such a revision will help recalculate the number of sites and separate Strzyżów culture inventories from other Early Bronze features. Moreover, an effort must be made to obtain a larger series of absolute dates.

At the decline of the Strzyżów culture in Małopolska and Volhynia there appeared Trzciniec culture populations, bringing new customs which would prevail there for about 800-900 years. Trzciniec communities would enter into close neighbourly relations with the groups of the Srubnaya-Sabatinovka circle, occupying the Northern Pontic Area. The effects of sustained NW-SE contacts would include more metal imports (weapons and ornaments) and new and different stylistic inspirations visible in various areas of local manufacturing.

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COMMENTS ON THE ORIGINS OF NICHE GRAVES IN THE ZŁOTA CULTURE

1. INTRODUCTION

The Złota culture (ZC) is one of the most mysterious groups of the Decline Neolithic in the lands of modern Poland. First explored in the late 19th century, it has not stopped to intrigue successive generations of researchers since then. The majority of materials attributed to this culture were produced by a major excavation project carried out by a team of archaeologists headed by Józef Żurowski in Złota Sandomierska in 1926-1930. They discovered about 100 graves in which over 200 skeletons were identified [Krzak 1976: 160, 176] and a huge number of movable finds.

A large number of hardly attributable artefacts come from amateurish searches conducted in the late 19th and early 20th centuries by Zdzisław Lenartowicz, who was eventually banned from continuing his searches by the national heritage conservation authority in 1921. Due to war time turbulence and circumstances that were very unfavourable to Złota materials [Machnik 1979b: 379], our knowledge on this exceptional culture is still based on rather meagre evidence.

After World War II, few new sources were retrieved. They come mostly from single graves which were explored in the course of either rescue or regular excavations. This is how grave complexes from Samborzec [Kamieńska 1965; Buchard, Włodarczak 2012], Sandomierz, *Salve Regina* Mount [Buko1988; Ścibior 1993], Sandomierz-Rynek, Włostów [Gąsowska 1962] and Garbów Stary [Bargieł, Florek 1990] were investigated.

Despite the publishing of individual cemeteries from Złota by Zygmunt Krzak in 1958-1970 [Grodzisko II – Krzak 1958; Grodzisko I – Krzak 1961; Nad Wawrem – Krzak 1970] and a monograph of the Złota culture in 1976 [Krzak 1976], many of its aspects have not been sufficiently explored and give rise to many con-

troversies. This is true for both general issues (for instance, the origins of the ZC and its significance for the Late Neolithic in Małopolska) and the details of the funerary rite.

In recent years, the ZC has been attracting more interest, owing to the discovery of new graves on the Sandomierz Upland, in Wilczyce [Florek, Zakościelna 2005], Sandomierz [Bajka 2010], Złota [site Kwacała's Mound, Florek 2012], Święcica, Kleczanów (unpublished investigations by Monika Bajka and Marek Florek) and Książnice [Pińczów Hump; Wilk 2013].

In 2006-2013, Piotr Włodarczak published a series of papers on the absolute chronology and position of the ZC in the cultural landscape of the Małopolska Late Neolithic [2008a, 2011, 2013a]. Recently, the question of the ZC was comprehensively tackled by Barbara Witkowska, who defended a doctoral dissertation entitled *Złota Culture. Taxonomy, Settlement and Chronology* at the Jagiellonian University in 2014. She critically reviewed available archaeological sources and presented a slightly modified version of the origins and development of the culture in question. However, she devoted the most space to the development of the first ever typology of ZC movable finds with a special emphasis laid on the most representative artefact group, i.e. pottery [Witkowska 2014].

The weak point of research into the ZC funerary rite is the small number of graves that were preserved well at the time of their discovery and were then professionally explored. Moreover, there is an equally small number of graves whose documentation is complete both in terms of photographs and drawings.

Unfortunately, most of the features unearthed in the 1880s, 1920s and 1930s in Złota have incomplete documentation, making it difficult to draw any specific conclusions as to their structure. To make matters worse, due to the frequent absence of anthropological terms, a large number of the graves cannot be used in the comprehensive discussion of rules governing the funerary rite.

The purpose of this paper is to consolidate the basic data on grave structures used by ZC populations. Owing to excavations carried out by the present author on site 2, Książnice, Busko-Zdrój District, Świętokrzyskie Province, the data has been greatly expanded [Wilk 2013].

On many occasions, the literature has stressed the special, syncretic character of the ZC [Antoniewicz 1925; Machnik 1979b; 2008; Krzak 1976; Kruk, Milisauskas 1999], manifested by the traits of several Decline Neolithic groups from the upper Vistula drainage basin in ZC grave inventories and form of burials. These groups include the Globular Amphora (GAC), Corded Ware (CWC), and Baden (BC) cultures, as well as the Funnel Beaker (FBC) and Bell Beaker cultures according to older publications.

The most popular archaeological markers of the ZC include:

1. Niche graves with stone elements (stone pavements)
2. Collective burials, more rarely single ones, frequently fragmented, bearing traces of post-deposition manipulations

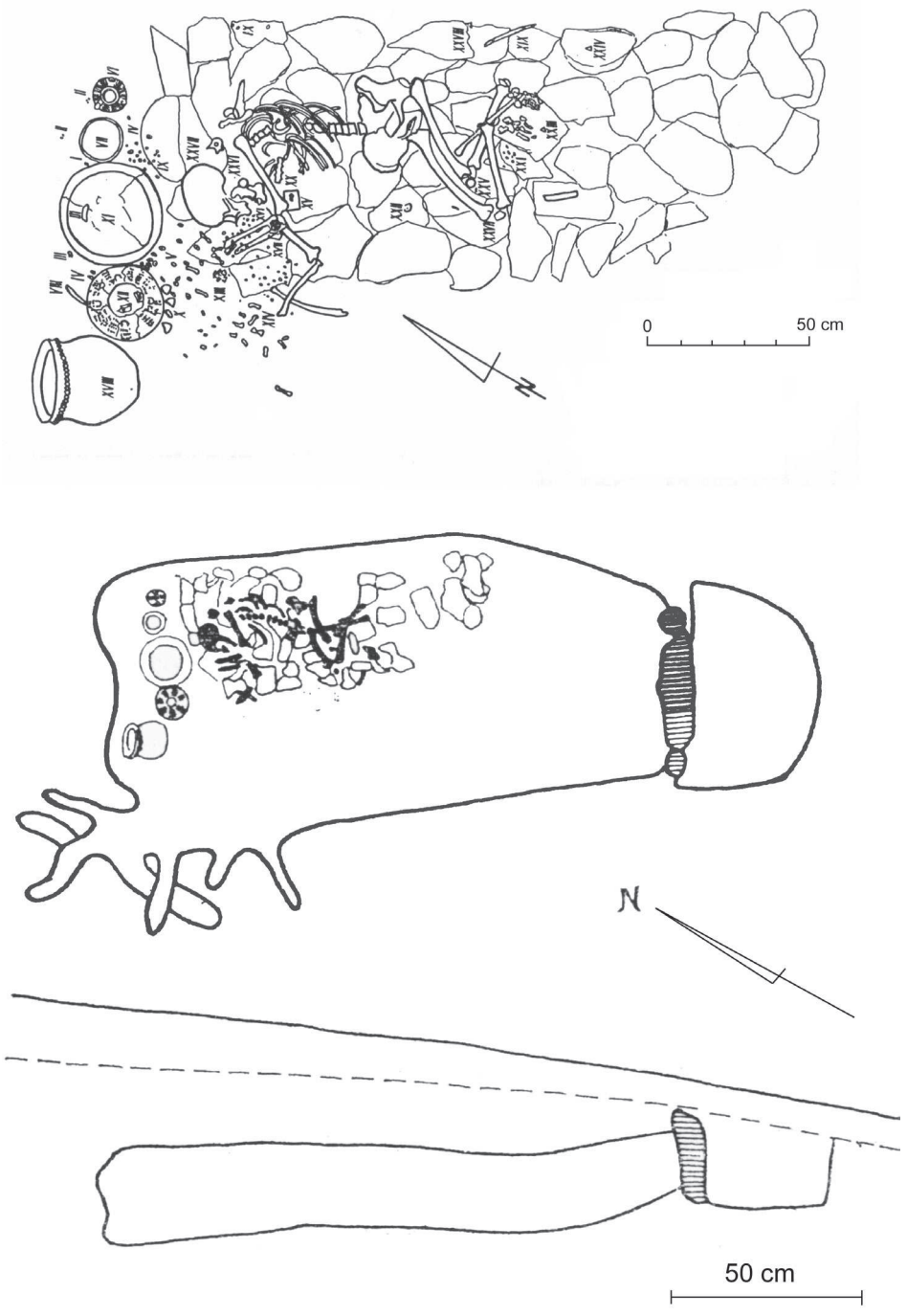


Fig. 1. Złota, site Nad Wawrem, Grave 75. [*after* Krzak 1970: 89, Figs. 73, 74]

3. Richly ornamented vessels (amphorae, beakers, bowls, pots, cups, lids), covered by the ornament of multiple horizontal and undulating cord impressions and stamp impressions on the neck and upper belly.

It appears, however, that the principal ZC marker remains the special niche grave structure, while the syncretism stressed with respect to movable artefacts is also reflected in the funerary rite.

2. GRAVE STRUCTURE

Zygmunt Krzak, so as to write his Złota culture monograph, analyzed 106 graves of which over 90 per cent were exposed in the course of investigations in situ. Out of this number, he selected 51 features in the case of which the niche structure was certain [1976: 160-163]. As regards the others, their state of preservation at the time of discovery and surviving documentation prevented positive classification. The latest study by Barbara Witkowska covers 155 graves of which number 126 were uncovered at the Złota site complex [2014: 93]. The number of certain niche features was set by her at 70 or fewer than a half of the whole set. It must be observed in this context that the correct number of ZC niche structures is very hard to estimate because at the time of their discovery most graves were badly damaged and only their bottoms remained for investigation.

3. DIAGNOSTIC FEATURES

To describe the ZC sepulchral architecture, several best-preserved and well-documented assemblages were selected. Details concerning particular features are taken from source publications and (in the case of investigations at Złota) from the catalogue included in Witkowska's dissertation.

1. Grave no. 75, site Nad Wawrem [Fig. 1; Krzak 1970: 89, Figs. 73, 74]

The grave consists of a vertical entrance shaft, semicircular in cross-section (dimensions: length: 120 cm, width 100 cm, depth 60 cm), a single limestone slab closing the entrance, a long corridor (length: 60 cm, width 90 cm, height 30 cm), gently descending in the NW direction, and an irregularly rectangular spacious niche (length 360 cm, width 170 cm, depth 120 cm). The eastern portion of the niche bottom is paved with limestone slabs on which a single skeleton lay. The

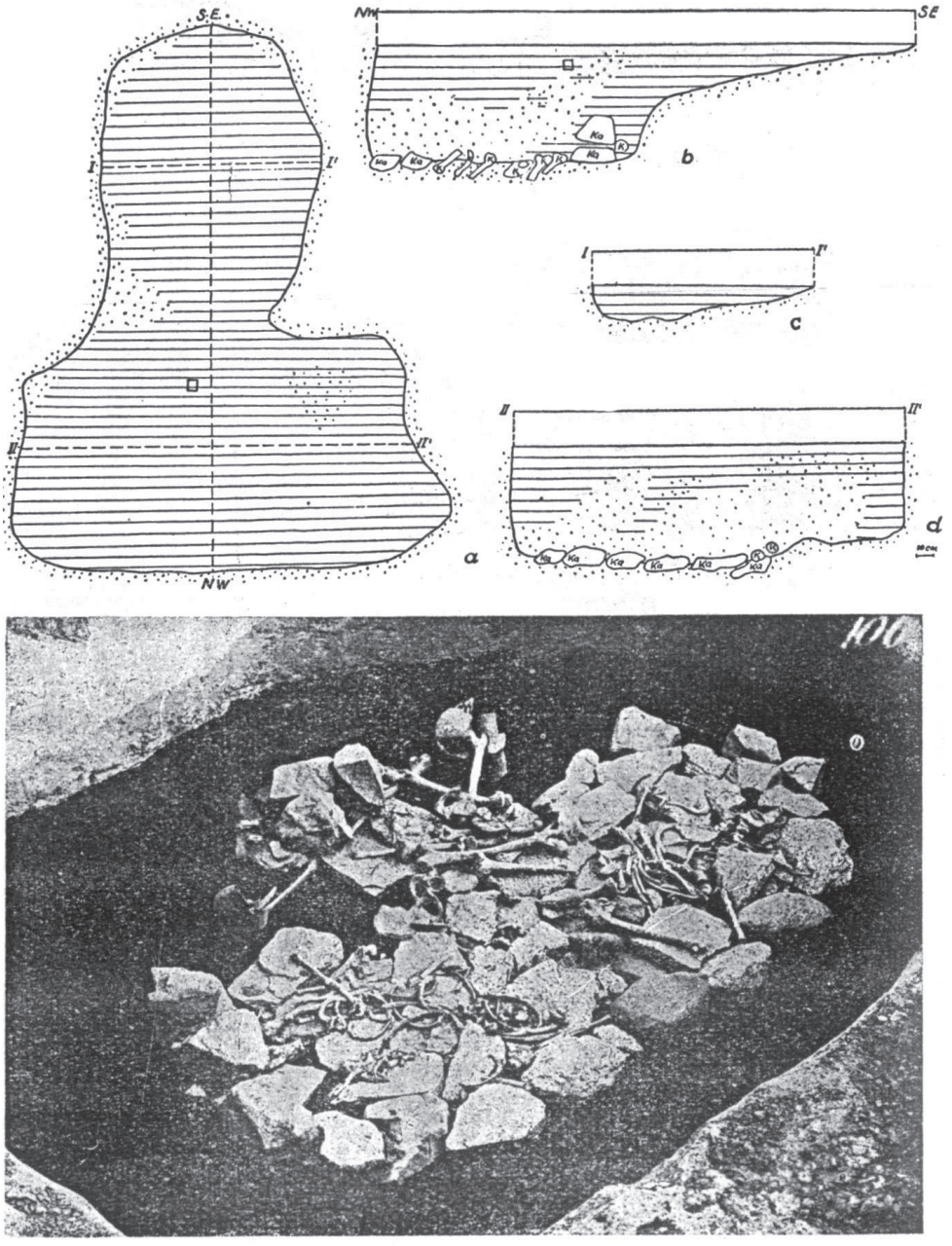


Fig. 2. Złota, site Grodzisko II, Grave 7 (according to Wotkowska). [*after* Krzak 1958: 343-345, Figs. 9, 10]

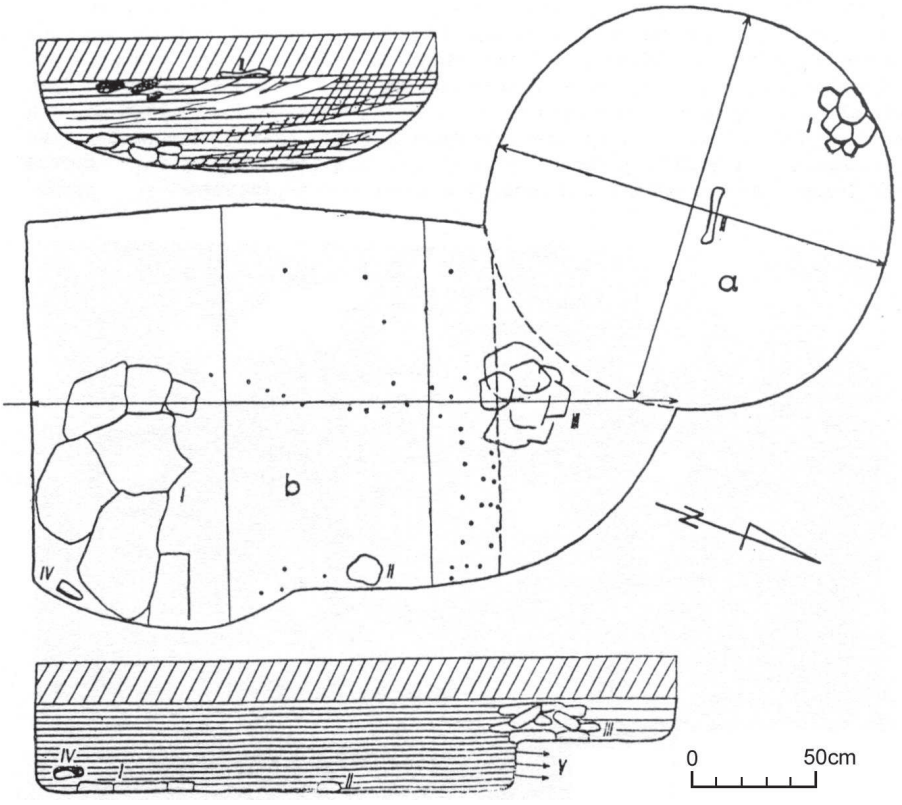


Fig. 3. Złota, site Nad Wawrem, Grave 235b. [*after* Krzak 1970: 126-127, Fig.109]

longer side of the niche is orientated southeast-northwest. The entrance shaft faces the southeast. The niche is 50-75 cm high and its ceiling is almost flat.

2. Grave 7 (8 according to Witkowska), site Grodzisko II [Fig. 2; Krzak 1958: 343-345, Figs. 9, 10].

The feature consists of a vertical, subrectangular entrance shaft (length: 150 cm, width 120, depth 30 cm), descending towards the niche, and a subrectangular spacious niche. Almost the entire niche bottom is paved with limestone slabs. The surviving documentation gives little hint whether the structure has a corridor or rather the shaft obliquely descends towards the niche. A stone partition between the shaft and corridor, possibly due to sliding, is found inside the niche, at its south-eastern wall. The niche (length: 290 cm, width: 130 cm, height: 80 cm) is orientated northeast-southwest, perpendicularly to the entrance shaft opening to the southeast. On the niche bottom, there lay scattered bone remains of two individuals. This grave is probably the only known instance of an entrance being placed on the longer wall of the niche. It is also possible, however, that the pit

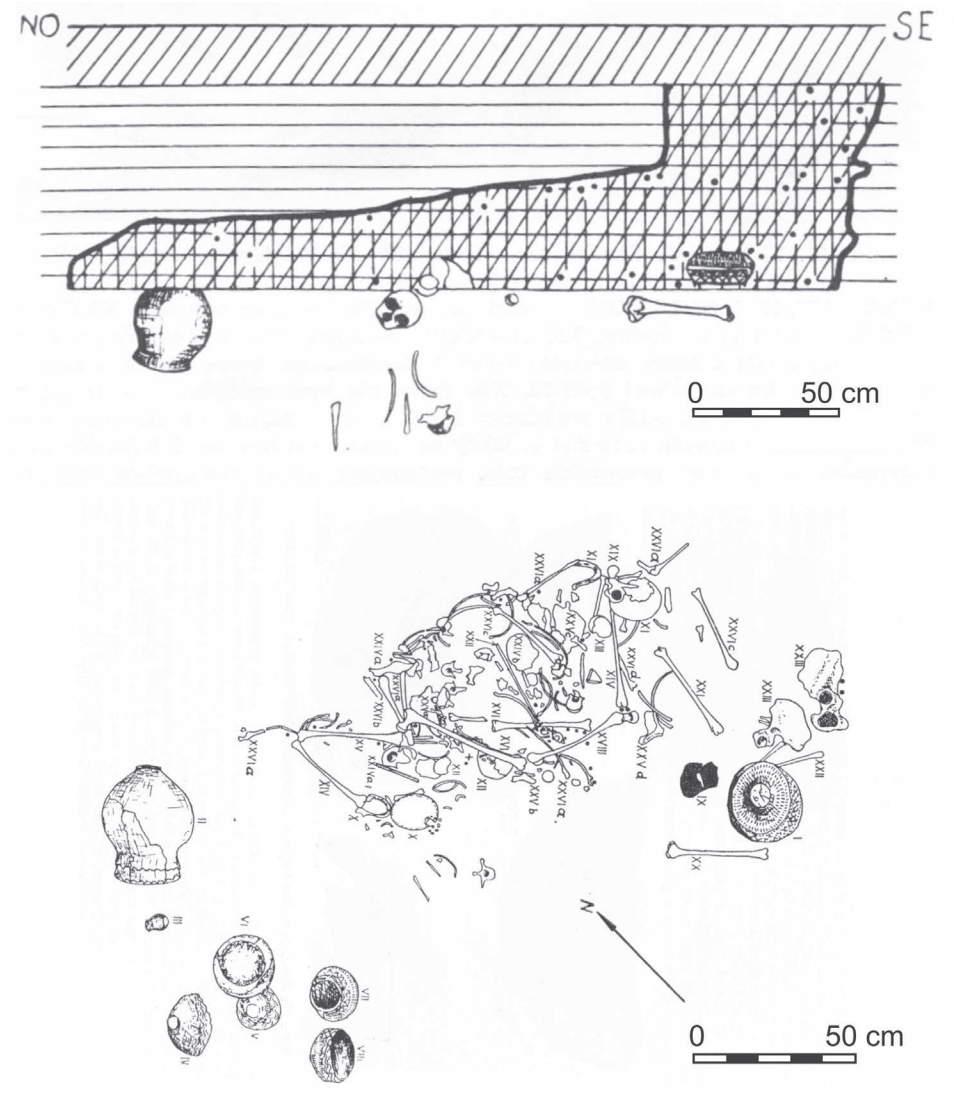


Fig. 4. Złota, site Grodzisko I, Grave 246. [*after* Krzak 1961: 53-54, Figs. 50, 52]

adjoining the niche in the southeast is not connected to the niche and that it was wrongly interpreted by Krzak.

3. Grave 235b, site Nad Wawrem [Fig. 3; Krzak 1970: 126-127, Fig. 109].

The feature comprises an irregular niche (length: 280 cm, width: 200 cm, depth: 40 cm) and an oval shaft (diameter: approx. 50 cm), partially damaged by the younger pit 235a. The shaft is cut off on the niche side with a partition made up of four layers of stone slabs. The niche adjoins the shaft: there is no corridor. The

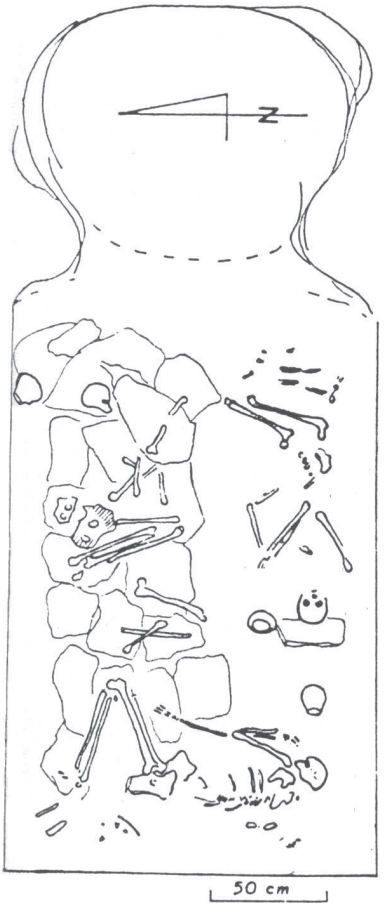


Fig. 5. Złota, site Nad Wawrem, Grave 237. [*after* Krzak 1970: 128-129, Fig. 111]

south-eastern portion of the niche is paved with limestone slabs. The niche is orientated northwest-southeast, with the entrance facing the northwest. The surviving height of the niche is 40 cm. A step between the shaft and niche is readily visible. Any information on surviving bone remains is lacking.

4. Grave 246, site Grodzisko I, Złota [Fig. 4; Krzak 1961: 53-54, Figs. 50, 52]

The feature consists of a rectangular niche (length: 220 cm, width: 145 cm, height 92 cm) orientated northwest-southeast, with an irregularly shaped entrance (length: 110 cm, width: 80 cm, depth 30 cm) facing southeast. The entrance shaft directly joins the niche: there is no corridor. The niche ceiling gently slopes northwest. In the grave, two complete skeletons were found and a fragment of a third.

The next three graves have an entrance shaft visible in a horizontal projection but they have no cross-sections published.

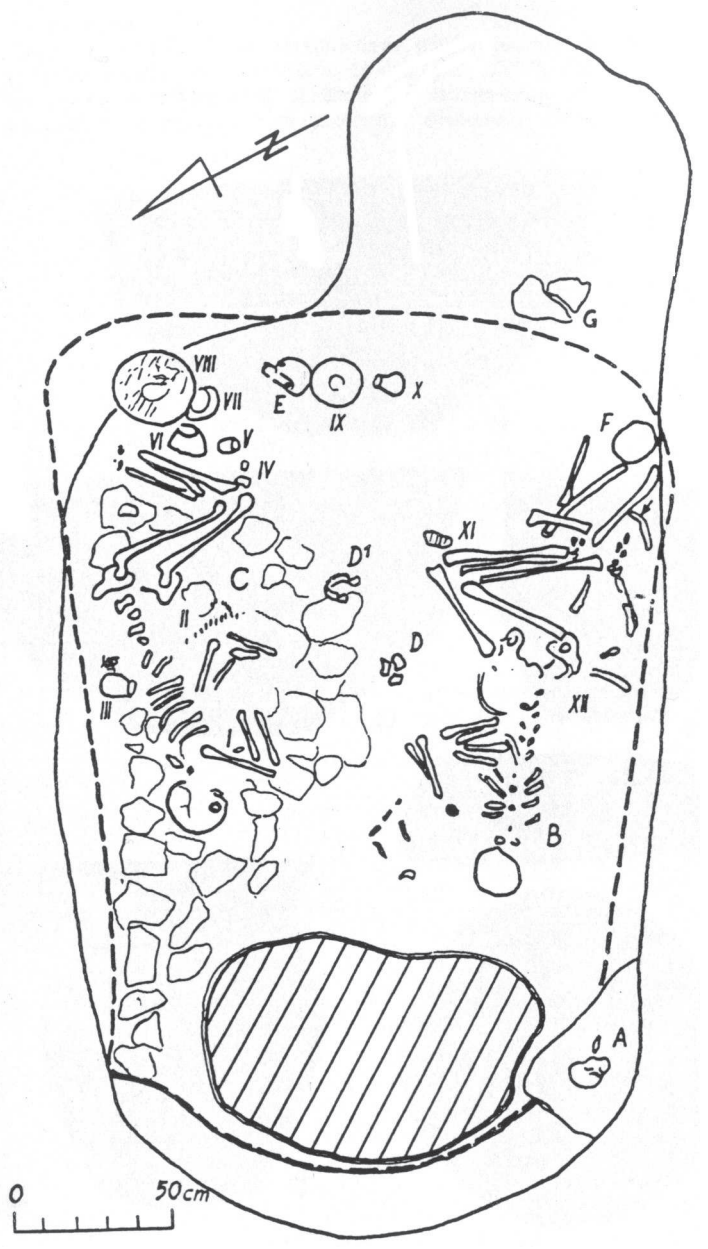


Fig. 6. Złota, site Nad Wawrem, Grave 260. [*after* Krzak 1970: 145-147, Fig. 133]

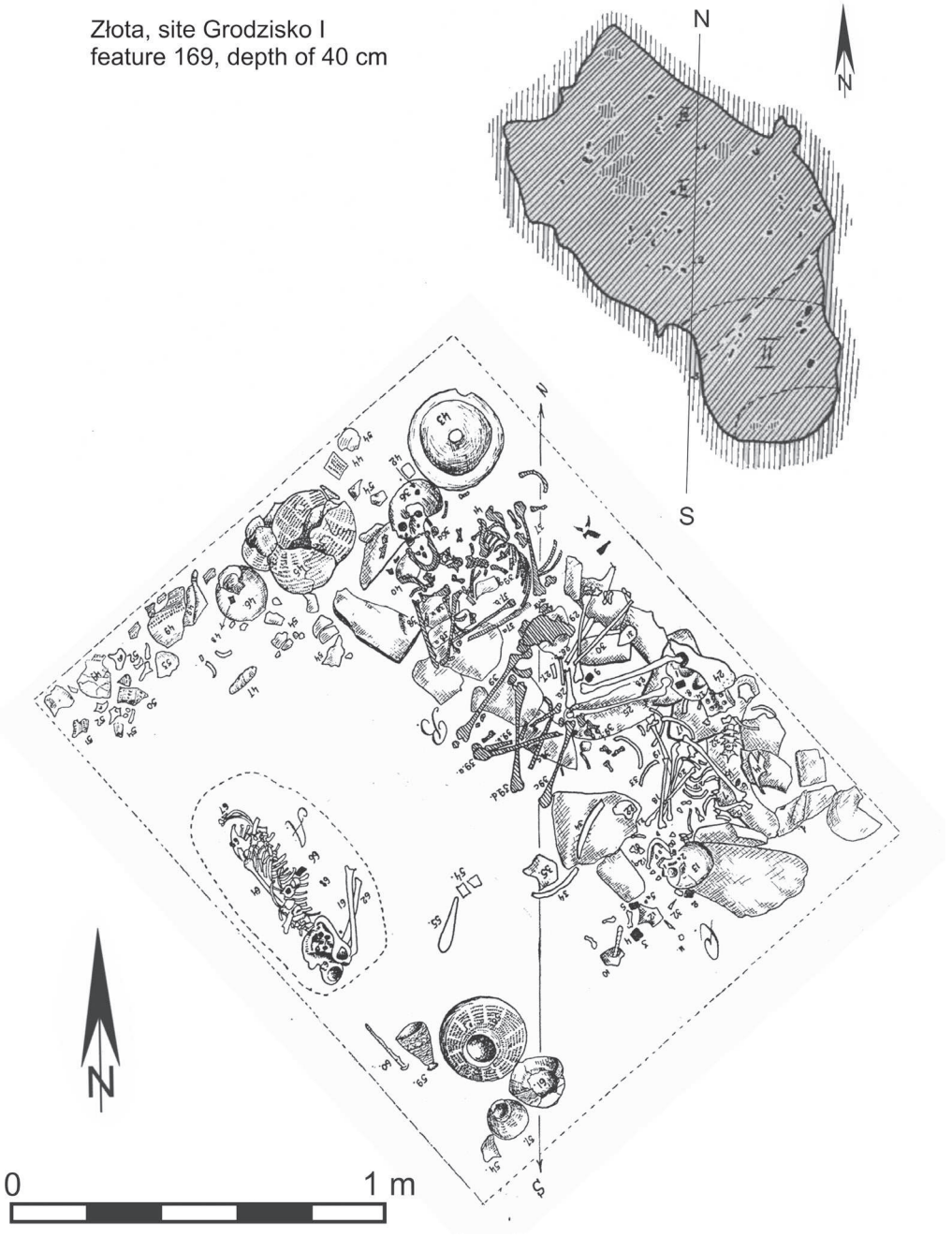


Fig. 7. Złota, site Grodzisko I, Grave 169. [*after* Rauhut 1953: 3-5, Plate XXII, Fig. 1]

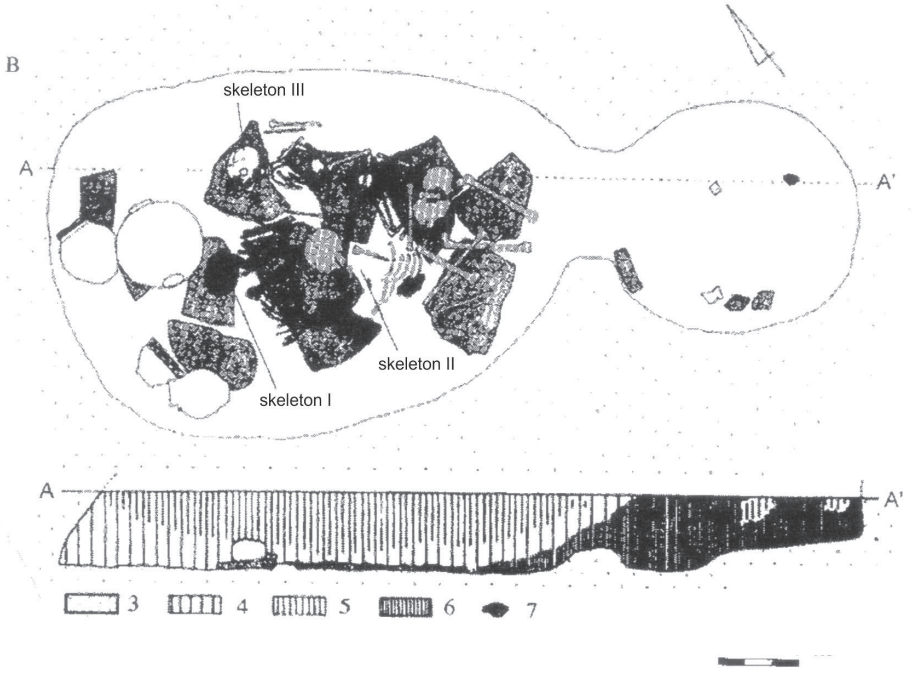


Fig. 8. Wilczyce, Sandomierz District, site 90, Feature 10. [*after* Florek, Zakościelna 2005: 46--47, Fig. 3B]

5. Grave 237, site Nad Wawrem [Fig. 5; Krzak 1970: 128-129, Fig. 111].

The grave consists of a rectangular niche (length: 300 cm, width: 190 cm, height 100 cm) and an oval shaft (length: 130 cm, width: 110 cm, depth: 60 cm) joined by a corridor (length: 20 cm, width: 95 cm). In the northern portion of the niche, the bottom is paved with limestone slabs. The niche is orientated east-west, with the shaft opening to the east (northeast-southwest, with the shaft facing north-east according to Witkowska). There is no partition blocking the niche entrance. The grave held three skeletons, lying in a crouched position on the pavement and beyond it.

6. Grave 260, site Nad Wawrem [Fig. 6; Krzak 1970: 145-147, Fig. 133]

The grave consists of a subrectangular niche (length: 260 cm, width: 190 cm) and an irregularly rectangular shaft (length: 100 cm, width: 100 cm). The north-eastern portion of the niche is paved with limestone slabs. The niche is orientated southeast-northwest, with the shaft on its south-eastern side. A step between the shaft and niche is readily observable. A partition blocking the entrance to the niche has survived in fragments in the form of a few stones, lying on the step edge. The surviving niche height is 100 cm, while the surviving height of the entrance shaft is

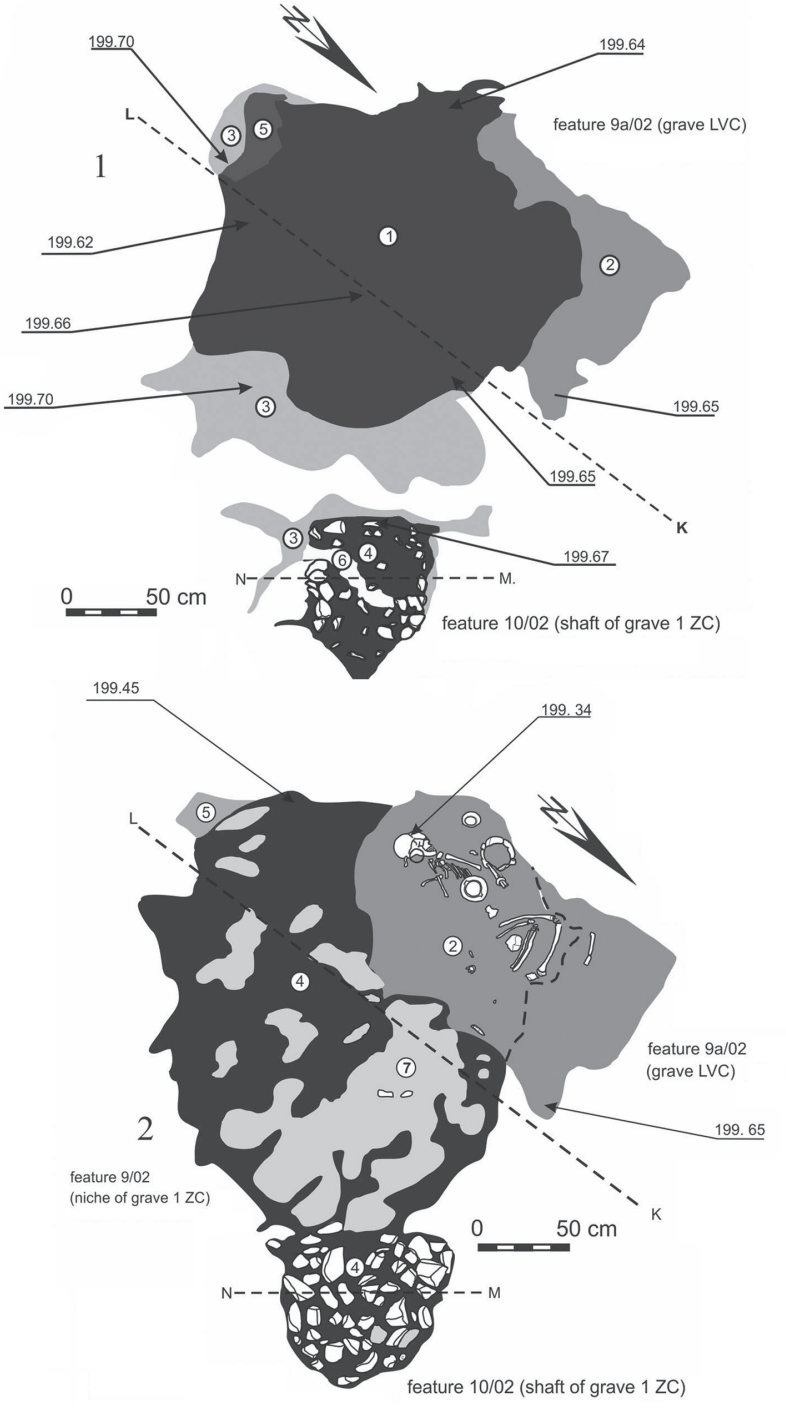
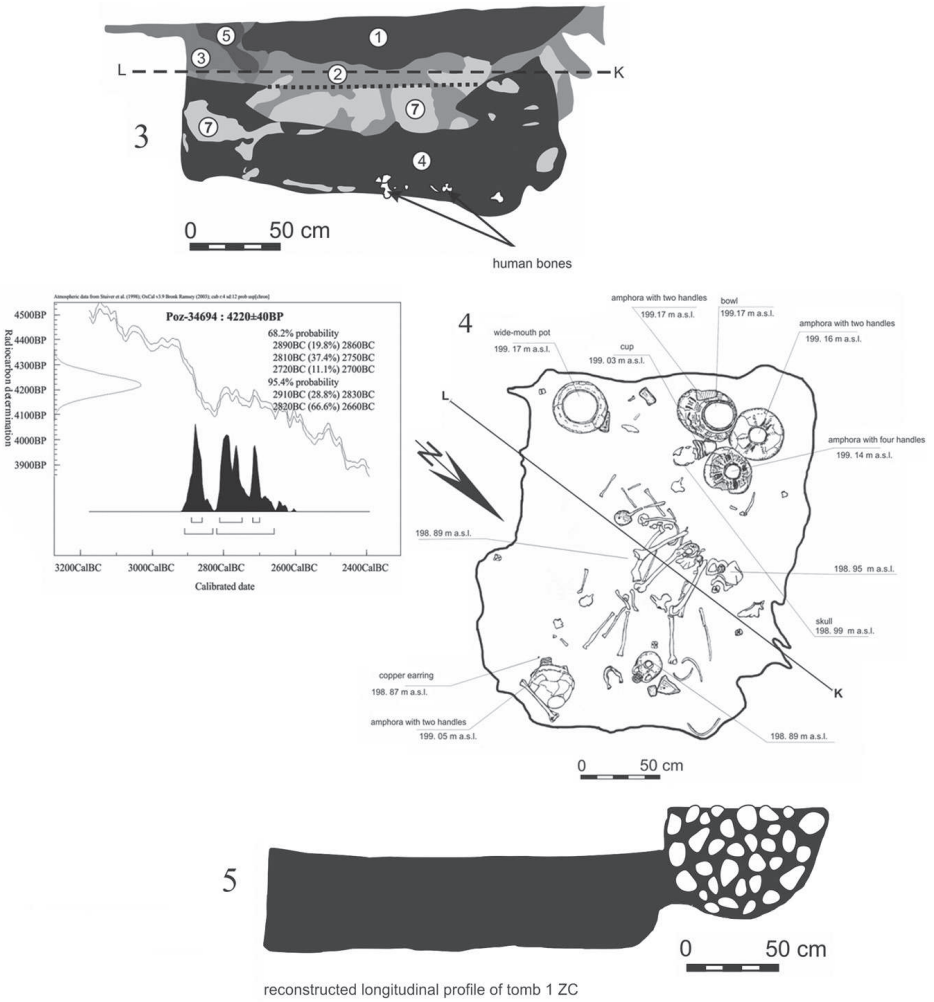


Fig. 9a. Książnice, site 2, Grave 1. [*after* Wilk 2013: 312-313, Figs. 4, 9]. Legend see Fig. 9b



LEGEND

1 - dark brown-black humus filling up the through, having emerged due to collapsing of the ceiling of grave 1 ZC
2 - light brown filling of grave 2 LVC (feature 9a/02)
3 - grey-beige rinsed-out layer
4 - dark brown-black humus filling up the entrance shaft (feature 10/02) and niche (feature 9/02) of grave 1 ZC
5 - ashen-dark brown clay
6 - mole hole
7 - patches of loess from collapsed ceiling of grave 1 ZC
--- – original level of the niche ceiling of grave 1 ZC

Fig. 9b. Książnice, site 2, Grave 1. [*after* Wilk 2013: 312-313, Figs. 4, 9]

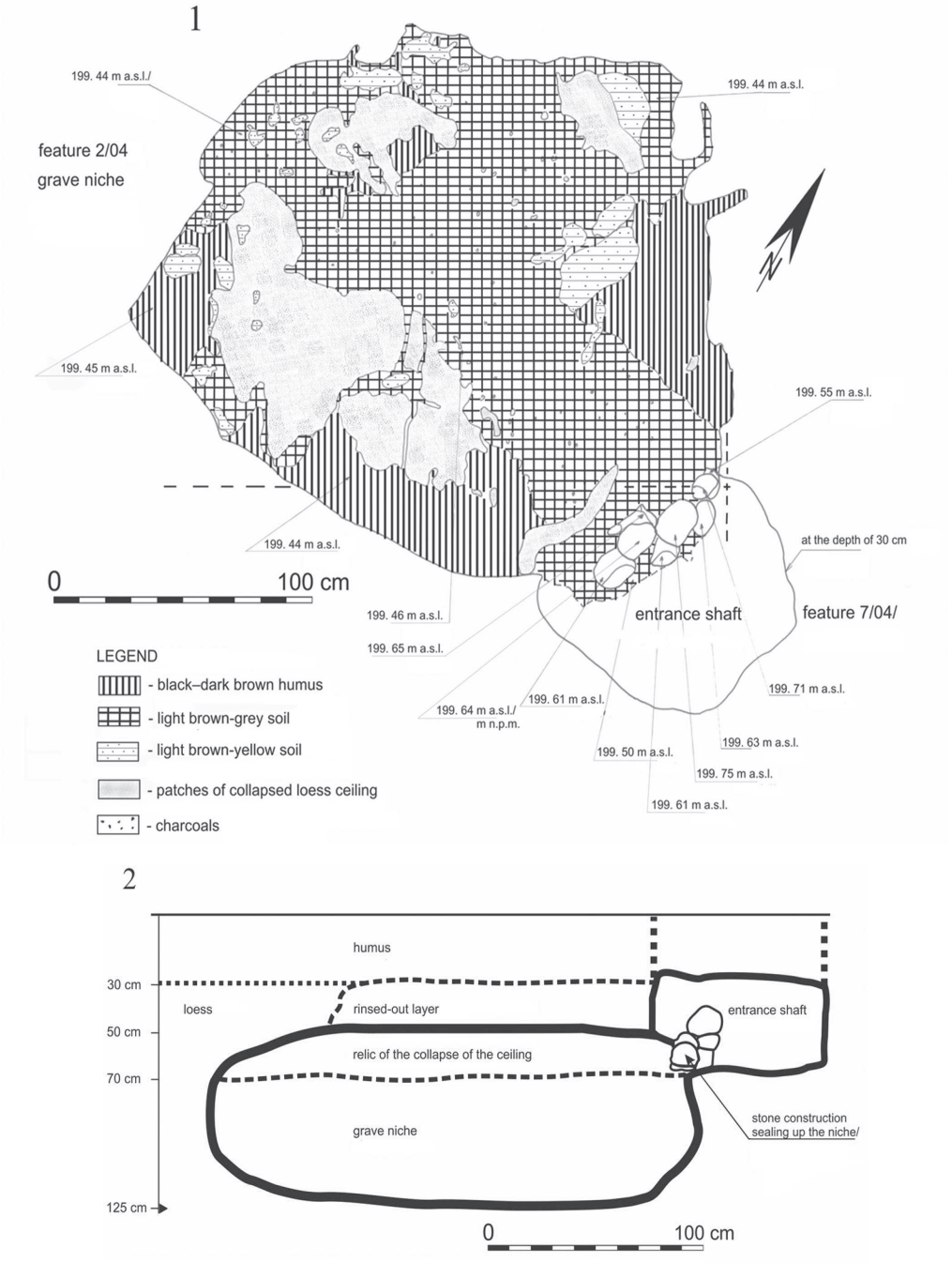


Fig. 10a. Książnice, site 2, Grave 2. [*after* Wilk 2013: 314, 317, Figs. 17, 21]

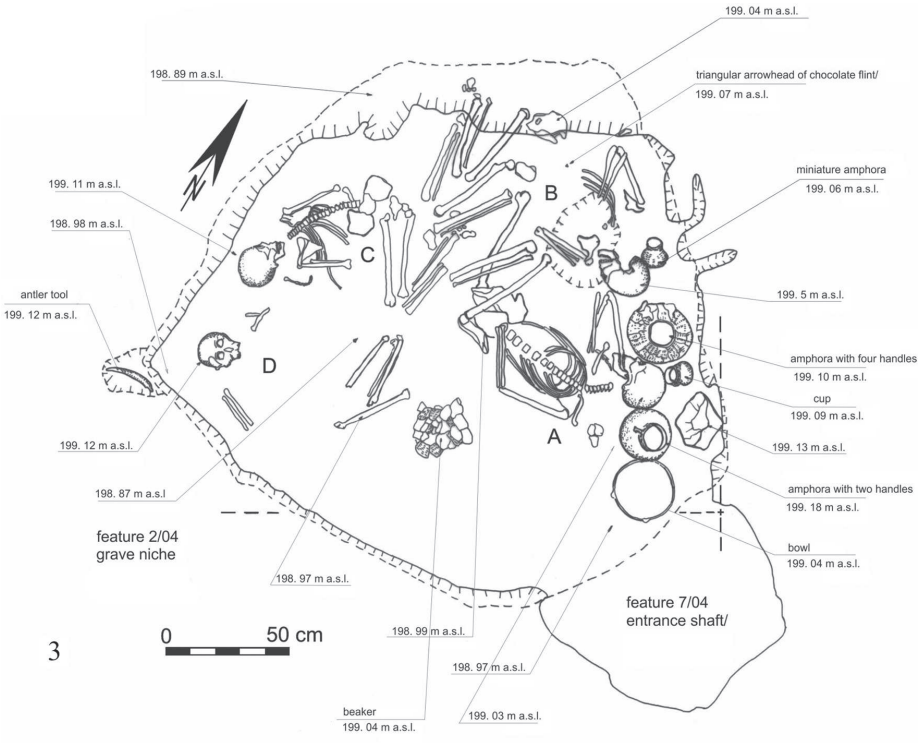


Fig. 10b. Książnice, site 2, Grave 2. [*after* Wilk 2013: 314, 317, Figs. 17, 21]

60 cm (30 cm according to Witkowska). The grave was found to hold six skeletons, lying on the pavement and beyond it.

7. Grave 169, site Grodzisko I [Fig. 7; Rauhut 1953: 3-5, Plate XXII, Fig. 1].

The grave consists of a rectangular niche (length: 220 cm, width: 180 cm, height: 110 cm) and an oval shaft (length: 120 cm, width: 130 cm). The north-eastern portion of the niche is paved with limestone slabs. It is orientated north-west-southeast, with the shaft opening to the southeast. There is no stone partition blocking the niche entrance. The grave held three skeletons lying on the pavement and beyond it, with the heads of two pointing in opposite directions.

8. Feature 10, site 90, Wilczyce, Sandomierz District [Fig. 8; Zakościelna, Florek 2005: 46-47, Fig. 3B]

The grave consists of a circular shaft (diameter: 90 cm, depth: 30 cm), a short corridor between the shaft and niche, and a large oval niche (length: 205 cm, width: 150 cm, height 40 cm). Most of its bottom is paved with limestone slabs. The niche is orientated southeast-northwest, with the shaft located on its south-eastern side. The corridor has a marked loess threshold. No traces of a stone partition were found. The grave held three skeletons.

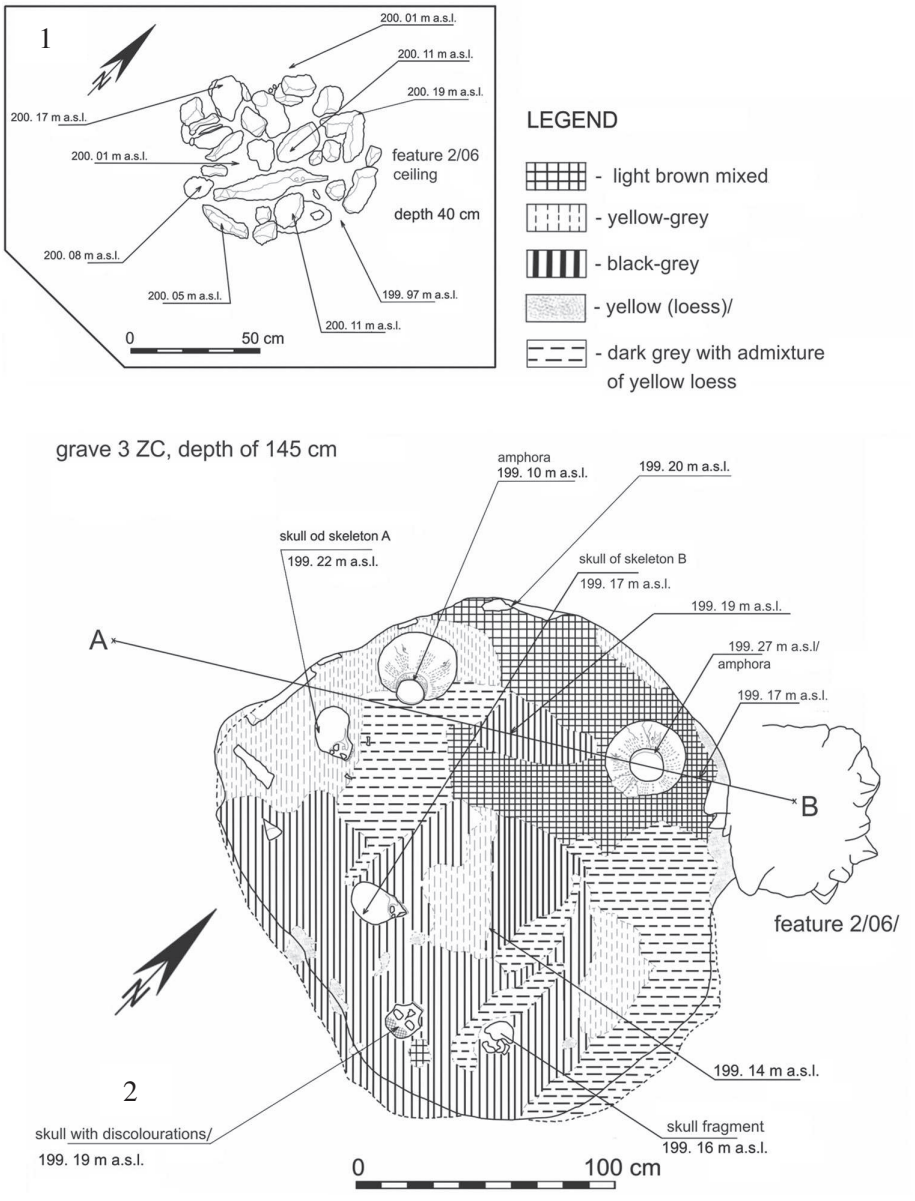


Fig. 11a. Książnice, site 2, Grave 3. [*after* Wilk 2013: 318-319, Figs. 25, 27]

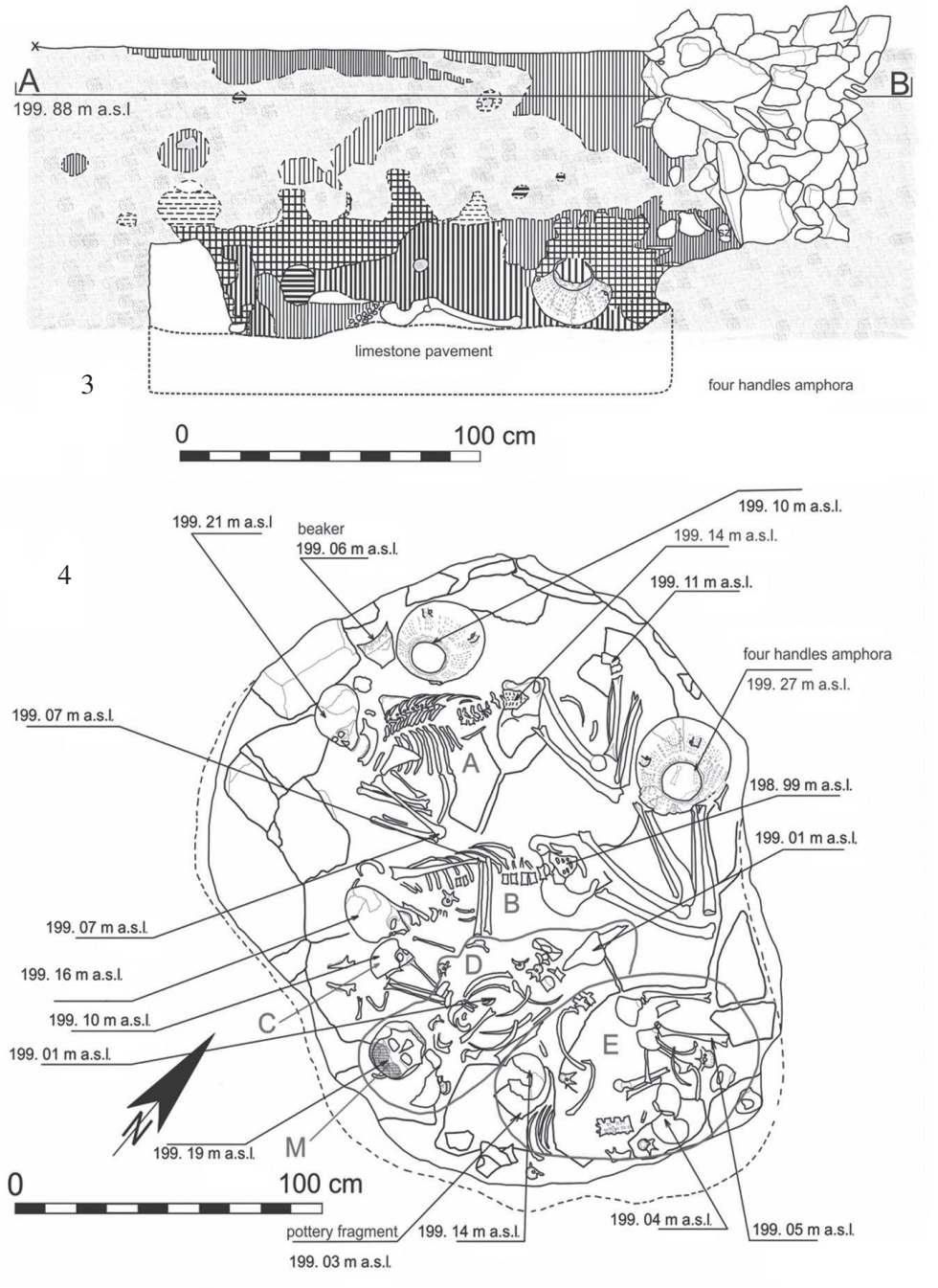
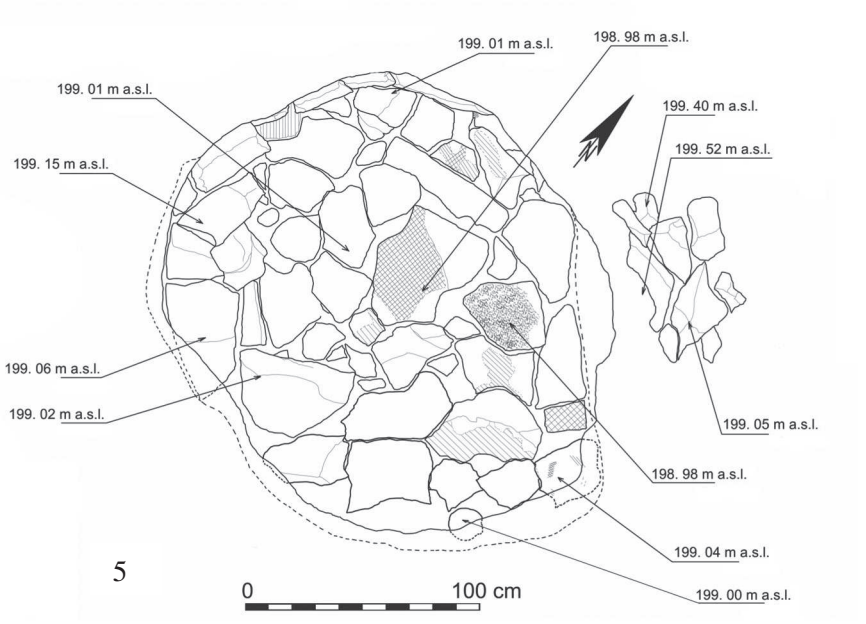


Fig. 11b. Książnice, site 2, Grave 3. [*after* Wilk 2013: 318-319, Figs. 25, 27]



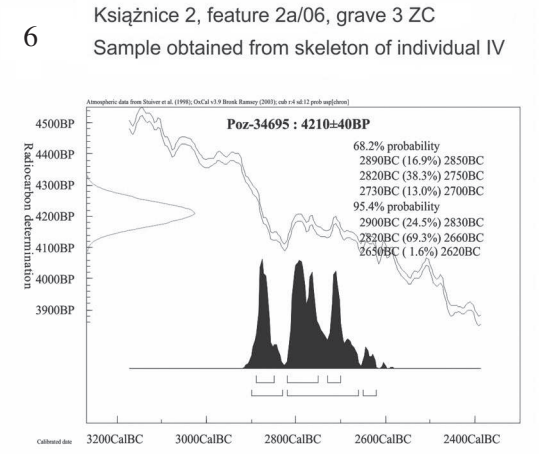


Fig. 11c. Książnice, site 2, Grave 3. [*after* Wilk 2013: 318-319, Figs. 25, 27]

New light on the questions of grave structure and the details of the ZC funerary rite was shed by the excavations carried out by the present author in 2001-2014 on site 2, Książnice, Busko-Zdrój District, located within the Pińczów Hump. As a result, four niche graves were discovered and methodically investigated. Luckily, Książnice features, owing to their rather deep sinking into the ground, had been very well preserved and could be thoroughly investigated.

9. Grave 1 [feature 9/02 and 10/02, Fig. 9; Wilk 2013b: 312-313, Figs. 4, 9]

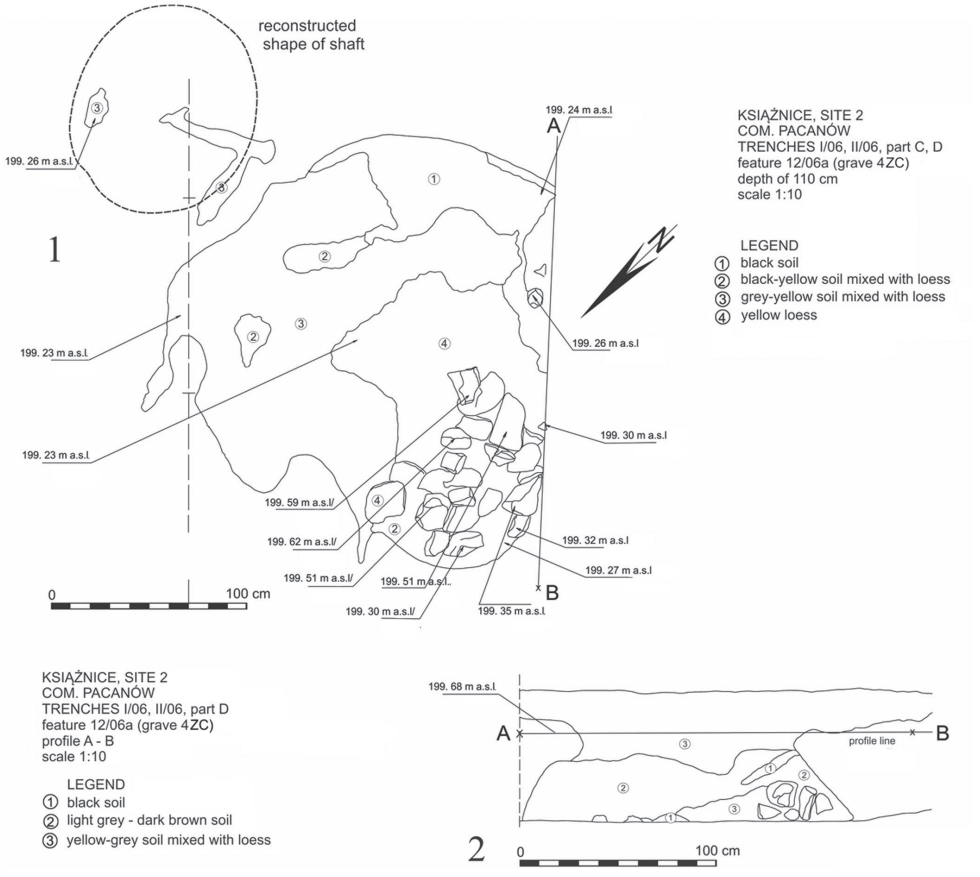
The grave consists of a subrectangular niche (measuring 221 × 180 cm), a rectangular shaft (measuring 83 × 91 cm) and a narrow corridor (length: 20 cm, width 60 cm, height: approx. 25 cm). A 64-cm-deep entrance shaft was filled in with small stones. Between the shaft and corridor, there is a vertical offset. The shaft is separated from the corridor by a loess threshold. The niche is orientated southwest-northeast, with the shaft located on its north-eastern side. The niche is 60-80 cm high and has a flat ceiling. Its bottom is strewn with single stones. In cross-section, the relic of a ceiling collapse can be seen: a loess layer which separated from the ceiling and fell into the niche. In the grave, one complete and two fragmentarily preserved skeletons lay.

10. Grave 2 [feature 1/04 and 2/04, Fig. 10; Wilk 2013: 312, 317, Figs. 17, 21]

The grave consists of an irregular niche measuring 220 × 218 cm and a rectangular entrance shaft (measuring 86 × 73 cm). The shaft was sealed with three layers of pebbles. The surviving depth of the shaft is 36-40 cm. No corridor. The niche is orientated east-west, with the shaft placed on its eastern side. Between the shaft and niche, there is a vertical offset. The original height of the niche was 60-76 cm, while its surviving height is 40-56 cm, featuring a flat ceiling. In the projections and a longitudinal profile of the niche, the relic of a ceiling collapse can be seen, showing loess sheets which separated from the ceiling and fell into the niche. On the grave bottom, four skeletons lay with their heads and feet alternating.

11. Grave 3 [feature 2/06 and 2a/06, Fig. 11; Wilk 2013: 318-319, Figs. 25, 27]

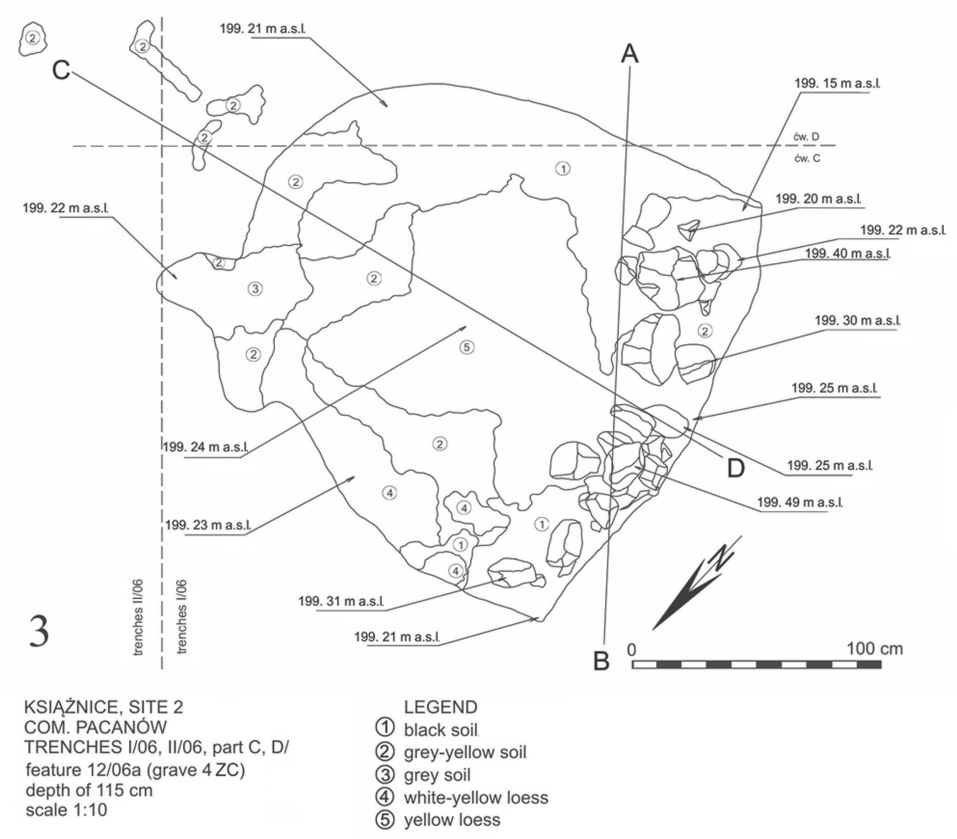
The grave has an oval shaft measuring 70 cm in diameter, filled densely with lumps of limestone and a single slab placed vertically blocking the entrance. The oval niche (measuring 197 × 169 cm) is orientated northeast-southwest, with the shaft placed on its north-eastern side. The entire niche bottom is paved with limestone slabs. At the western wall, vertically placed lumps of limestone form a ledge, reaching the niche ceiling. Between the shaft and niche, there is a short corridor (length: 25 cm, width: 40 cm, height: 25 cm), ending in an offset. The niche has not been damaged. A flat ceiling extends at the same height (60-70 cm) from the corridor to the niche end. Inside the grave, eight skeletons were found of which two had maintained anatomical order. The remains of the other six individuals lacked many parts and were scattered chaotically mainly in the southern and eastern portions of the niche.



F i g . 1 2 a . Książnice, site 2, Grave 4. [*after* Wilk 2013: 319-320, Figs. 33, 39]

12. Grave 4 [feature 12a/08 and 12b/08, Fig. 12; Wilk 2013: 319-320, Figs. 33, 39]

The grave consists of an oval niche (measuring 206 × 199 cm) and possibly an oval shaft (dimensions reconstructed relying on the surviving fragment are approx. 45 × 53 cm). Judging by the distance between the niche and shaft, the grave originally had a corridor too. On niche projections and a profile, one can readily see the relic of a ceiling collapse, having the form of a monolithic block of loess,which separated from the ceiling and fell into the niche, landing on its bottom. The niche is orientated east-west, with the shaft placed on its east side. The original niche height was 75-78 cm. Above the fill, in the western portion of the niche, a stone pavement, preserved in fragments, was uncovered, which, as it seems, originally covered the entire niche bottom (the pavement has survived in places where an MC



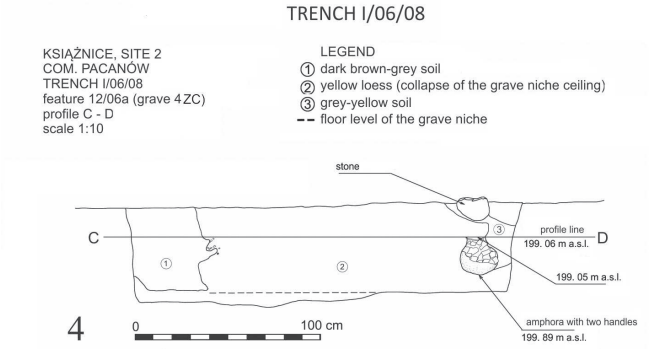
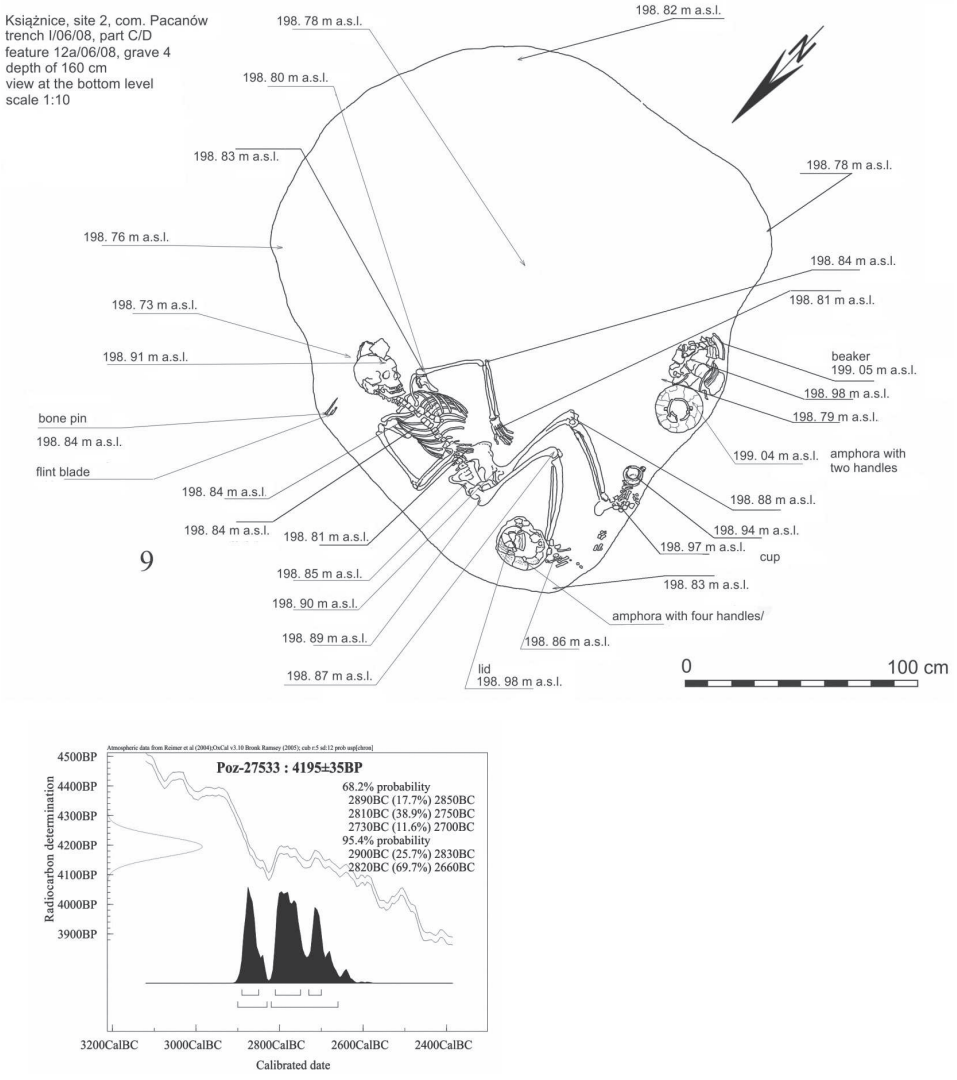


Fig. 12b. Książnice, site 2, Grave 4. [*after* Wilk 2013: 319-320, Figs. 33, 39]



F i g . 1 2 c . Książnice, site 2, Grave 4. [*after* Wilk 2013: 319-320, Figs. 33, 39]

ditch did not reach; the ditch destroyed the grave ceiling). On the bottom, a single skeleton lay, preserved in anatomical order.

Moreover, a very interesting structure was discovered by Monika Bajka on site 30, Święcica, Sandomierz District, in 2012.

13. Feature 1a [Fig. 13; Bajka 2012].

The grave has an oval niche (measuring approx. 220 × 230 cm and of a preserved height of approx. 70 cm) orientated northwest-southeast with the entrance

on the north-eastern side. Its bottom was strewn with single stones mostly close to the entrance, which suggests that originally they may have blocked the grave entrance. On the niche bottom, skeleton fragments of two individuals were revealed. In the oval entrance shaft (measuring approx. 160 × 180 cm), traces of fire were identified and burnt limestone was found as in hearths accompanying niche graves on site 2, Książnice [Wilk *et al.* 2011]. Between the shaft and niche, there was a loess threshold.

4. 'ZŁOTA-TYPE' MARKERS IN THE NICHE GRAVE STRUCTURE

It follows from the above descriptions of the best-preserved burials that the Złota-type niche-grave structure comprised three elements:

a. entrance shaft
b. corridor between the shaft and niche, which was found in some graves
c. niche.

Within each of the above elements, a set of distinctive traits was distinguished for the purpose of analysis.

a. Entrance shaft:
   - measuring on average: length: 125 cm, width 110 cm [the average dimensions of 24 graves in the case of which entrance shaft dimensions are on record, after Witkowska 2014]
   - vertical (as regards the bottom part captured during the investigations)
   - most often located on the eastern or south-eastern side of the niche, less often on its north-eastern, southern or western side
   - subrectangular or oval in plan
   - densely filled with stones or earth, has a stone partition made up of rows of stones or a single stone slab
b. Corridor:
   - narrow
   - low (approx. 30-50 cm)
   - usually short (approx. 20-30 cm, except for grave 75, site Nad Wawrem, where it is approx. 60 cm long)
   - with or without a threshold.
c. Niche:
   - measuring on average: length: 235 cm, width: 169 cm [the average dimensions of 108 graves, after Witkowska 2014]
   - subrectangular or (less often) oval

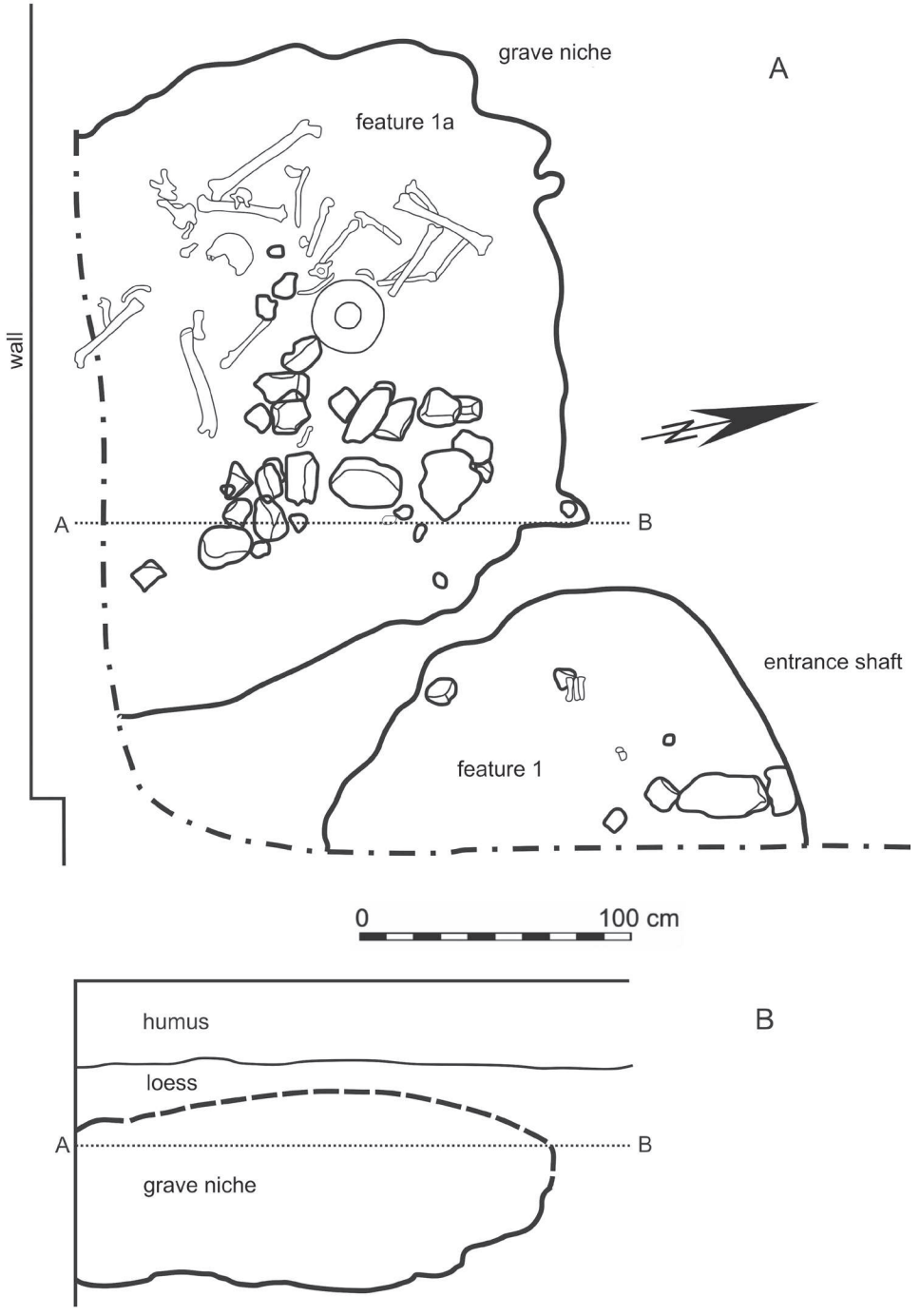


Fig. 13. Święcica, site 30, Feature 1a. [*after* Bajka 2012]

- orientated northwest-southeast (most often: 66 graves), northeast-southwest (often: 25 graves), east-west (rarely: 10 graves)
- flat-vaulted or with an obliquely descending vault
- relatively low: 79 cm (average of 108 niches)
- with a flat bottom paved with limestone slabs, partially paved, with single stones, no stones.

Considering the above traits, the features described above can be divided with regard to the niche shape into:

- rectangular
- oval

with regard to the shaft shape into:

- rectangular
- oval

with regard to the connection between the shaft and niche into:

- ones with an offset (when the shaft ends above the niche)
- ones with a corridor between the shaft and niche
- ones without a corridor
- ones with a threshold (when the shaft ends at the same or almost the same depth as the niche)

with regard to the presence/absence of stone elements on the niche bottom:

- ones with a stone pavement
- ones with a partial pavement
- ones with single stones
- ones without any stones

with regard to the manner the shaft is closed:

- a single stone slab
- a partition of stone rows
- the whole shaft is filled with stones

A very interesting question, so far ignored in the literature, is the presence of a threshold in the passage between the shaft and niche in several of the studied graves. An example of a perfectly preserved and exceptionally large threshold comes from Eneolithic grave 9, discovered in barrow group 'Mukhin II', Aksay [Rassamakin 2004: 39, Fig. 28-3]. Such features are more often found in the Catacomb culture [Chebotarenko, Yarovoy, Telnov1989: Figs. 53, 56].

As can be seen, ZC niche graves were not built according to a single specific pattern, but rather had many varieties. However, one can venture to distinguish a few major attributes, exemplifying the principal rules governing the funerary rite of the group in question. Three of such attributes certainly are the shape and orientation of the niche and the location of the shaft as regards the niche. It was on these attributes that the burial arrangement depended (corpse orientation depending on the sex and age, and the arrangement of grave goods). In the case of both rectangular and oval niches, a 'co-axial' arrangement of the entrance shaft

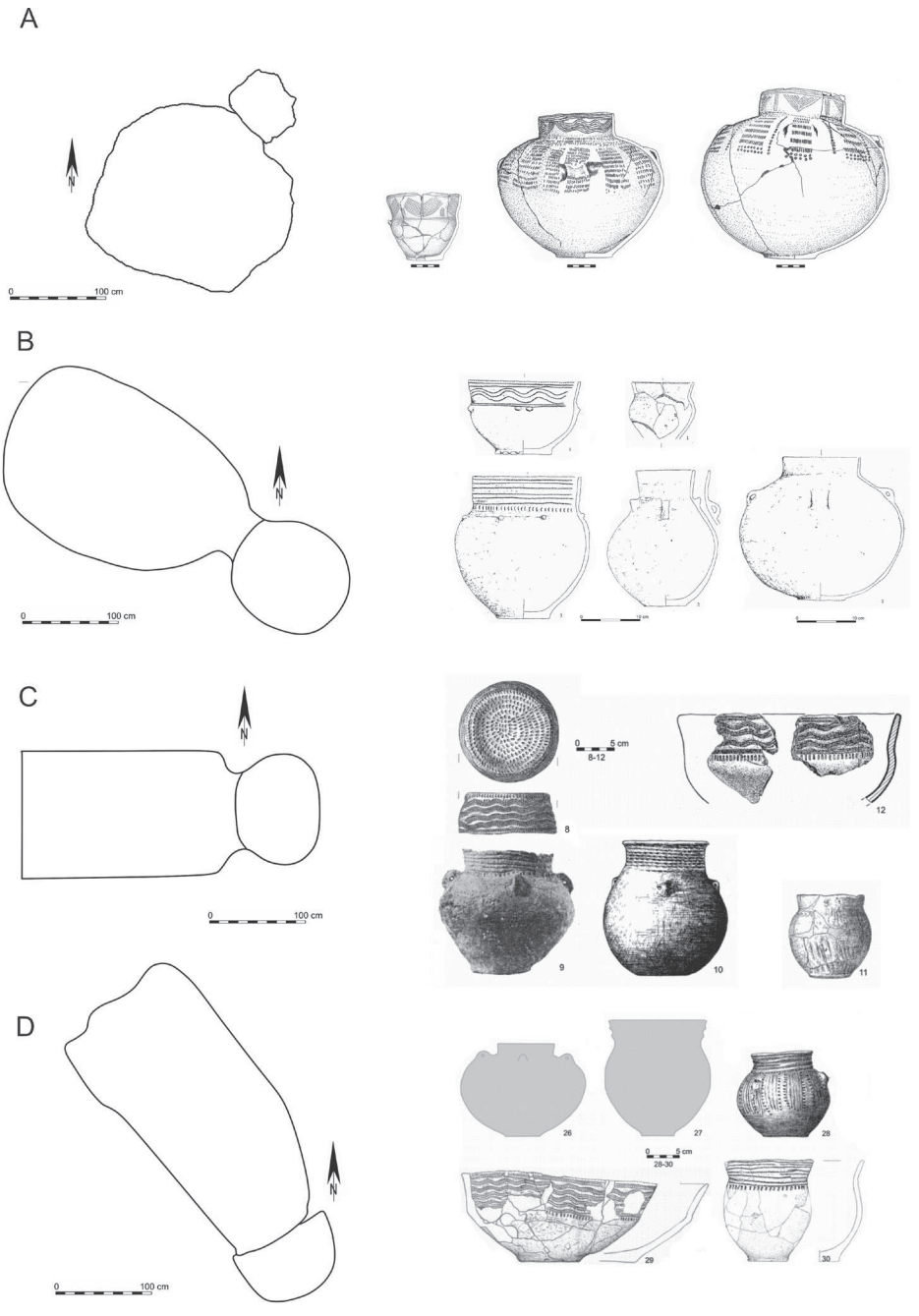


Fig. 14. Examples of oval and rectangular Złota culture grave niches: A – grave 3, site 2, Książnice, B – feature 10, site 90, Wilczyce, C – grave 237, site Nad Wawrem, Złota, D – grave 75, site Nad Wawrem, Złota. [*after* Wilk 2013; Florek, Zakościelna 2005; Witkowska 2014]

and niche was consistently used with the entrance placed on the longer axis of the grave. The final grave form (for instance, the finishing of the grave bottom, shaft shape and the manner it was filled) depended to a large extent on local geomorphologic conditions, availability or unavailability of stone building material and other secondary factors that are difficult to interpret now.

5. CONTROVERSIES OVER THE ORIGINS OF ZC NICHE GRAVES

The most outstanding authority on the Złota culture and related matters, Zygmunt Krzak favoured the thesis of a niche grave in Małopolska being borrowed from the Pontic Area, specifically from the circle of the Yamnaya and Catacomb cultures [Krzak 1980: 202]. After making the radiocarbon chronology of the Catacomb culture more accurate in recent years, researchers can set the time brackets of its development at 2800-2100/1800 BC [Ślusarska 2006: 63]. It follows that it is younger than the ZC, which is dated to 2900-2600 BC [Włodarczak 2013a: 9]. In addition, the sepulchral structures of the Catacomb culture clearly differ from ZC ones in shape (mostly T-shaped, with the entrance on the longer side of the niche) and size [small, as a rule built for a single dead individual; Ślusarska 2006: 70, Fig 15].

In the older literature, the opinion was often expressed that CWC grave structures had an impact on the form of ZC graves. Relying on a more accurate chronology of the Małopolska CWC, obtained in the last decade [Włodarczak 2006; Jarosz, Włodarczak 2007], and because of the clearly younger position of the niche grave horizon in the CWC, it was possible, however, to exclude definitively the possibility of tracing the idea of a niche grave in the ZC to the corded milieu [Włodarczak 2008a; Witkowska 2014].

The question of obvious structural differences between Złota-type niche graves and CWC ones was discussed by the above-cited authors as well. Witkowska distinguished two horizons of niche graves in Małopolska, differing in origins and chronology. She included ZC graves in Horizon I, traced to the Black Sea Area,and CWC graves (pointing to connections to structures found in the Usatovo group of the Tripolie culture) in Horizon II [2014: 102].

Piotr Włodarczak followed by Barbara Witkowska (searching for the origins of ZC niche grave structures) indicates, on the one hand, Late Tripolie groups: Usatovo on the lower Dniester and Zhyvotilovka-Volchanskoe on the middle and lower Dnieper, as well as the Pre-Yamnaya phase [Włodarczak 2008a: 563-566; Witkowska 2014: 153].

The idea of a niche grave supposedly reached Małopolska together with other Black Sea elements of spiritual culture in the early 3rd millennium BC, as part of

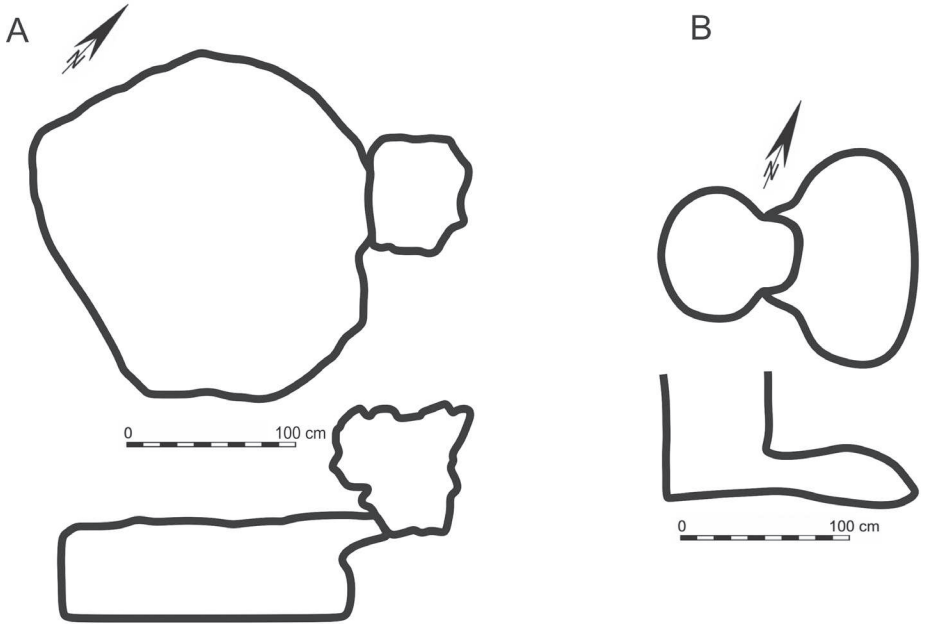


Fig. 15. Comparison of structure and proportion of a ZC niche grave (grave 3, site 2, Książnice – A) with grave 12, barrow 23, Bogusław – B). [*after* Wilk 2013; Androsov, Marina, Zavgorodniy 1991]

the so-called reflux, where the populations of the GAC eastern group allegedly served as a bridge . These communities, it is assumed, ca. 3000 BC [Kadrow, Szmyt 1996: 108; Szmyt 2013b: 99] expanded from the Lublin Province towards the Volhynia Upland, Podolia, the middle Dnieper and Moldavia only to come in contact there with Late Tripolie and Pre-Yamnaya groups [Szmyt 2013b; Fig. 7].

This very appealing hypothesis, explaining at the same time the origins of the niche grave structure in Małopolska and the question of the cultural change which brought about the rise of the CWC, has, however, a few gaps. If it is admitted that the oldest certain niche structures in the ZC come from 2900-2850 BC [Wilk 2013; Witkowska 2014], then the materials of the GAC eastern group on the Volhynia Upland and in Podolia ought to have somewhat older age determinations, oscillating as it seems at least around 3000 BC. Currently, we know of a single site with such an early chronology – Torpyzhyn in Volhynia – to which two radiocarbon dates refer. These are (Ki 5011) 4310±45 BP and (Ki 5010) 4270±50 BP. After calibration, they indicate the period of ca. 2990-2860 BC [Szmyt 1999: 64, 268]. The other dates from Volhynia and Podolia fall between 2840 and 2480 BC [Szmyt 1999: 71]. Slightly older dates, falling on the second half of the 4th millennium BC, we know only from the GAC Moldavia subgroup [Mihailescu-Birliba, Szmyt 2003: Table 1].

Moreover, it would have to be explained why the oldest niche graves are found only on the left bank of the Vistula, on the Sandomierz Upland and in the Nida Basin (*Niecka Nidziańska*), and as yet have not been found in the belt along which the transmission of cultural patterns from the Black Sea Area was supposedly taking place? For instance, on the Lublin Upland?

Surprisingly enough, in spite of the fact that most authors emphasize the huge contribution of the GAC to the rise of the ZC, when it comes to the study of sepulchral architecture, the contribution is practically marginalized.

Meanwhile, among various Late Neolithic communities, whose impact can be observed in the ZC, the most analogies concerning the funerary rite can be found nowhere else but in the Globular Amphora culture. Such traits as the northwest-southeast or east-west orientation, stone structural elements (pavements covering niche bottoms, pavements partially covering niche bottoms, single stones on the niche bottom) and finally, close analogies seen between, on the one part, the shape (rectangular, traces of corridors) and size [height: 80-100 cm, longer walls: 1.5-4 m, shorter walls: 1-2 m; Nosek 1967: 264] of cist graves and GAC stone-lined graves with a pavement and limestone cover and, on the other part, ZC niche graves – all seem to corroborate close connections between the sepulchral architecture of the two cultures in question.

According to Tadeusz Wiślański, as many as 70 per cent of GAC cultural traits can be found in the ZC, while ZC graves in their internal structure do not differ much from the graves of the GAC Puławy group and from some graves from Kujawy [Wiślański 1966: 118]. Owing to their rich ornamentation, including a high share of cord ornaments, the motifs of which resemble those of ZC pottery, and to stone-lined graves, Wiślański distinguished a separate, 'Małopolska' group that extended along the Vistula valley, from the Puławy and Garwolin Districts in the north to the Pińczów District in the south [Wiślański 1966: 89].

A very significant element, pointing to close connections with the GAC sepulchral rites, absent from the discussion of the ZC grave structure so far, is the stone mantle over the burial. It was observed for the first time during the exploration of grave 4 in Książnice (Fig. 12). It appears that such mantles have close affinities with covers and stone pavements covering GAC graves [for instance, Rębków Parcele, grave 1 – Nosek 1967: 135; Klementowice, cemetery B, grave 1 – Wiślański 1966: 69].

Furthermore, the characteristic layout of a stone pavement, frequently covering only the northern or north-eastern portion of the grave, is observed in both cultures [Nosek 1967].

A direct connection to the structure of GAC cist graves is shown by the ledge of limestone lumps discovered in grave 3, Książnice. The ledge supported the north-western wall of the niche [Wilk 2013: Fig. 29]. Similar structures were found in a grave on *Salve Regina* Mount, Sandomierz [Ścibior 1993: 319-320, Fig. 1] and in grave 7 (70), site Grodzisko I [Krzak 1961: 28, Fig. 25].

6. CONCLUSIONS

To simplify, it appears that the ZC niche in terms of its idea (empty, enclosed, underground space accessible through a corridor/entrance), shape (mostly rectangular), building material (limestone), orientation, and internal organization is an equivalent of the GAC cist grave or the stone-lined and stone-covered grave.

As such, the ZC niche radically differs from catacomb structures employed by Late Tripolie groups, the Yamnaya and Catacomb cultures and finally the CWC.

Considering the above, it can be ventured that the strongest impact shaping the ZC-type niche grave structure came from the funerary rite of the GAC, which settled the Sandomierz Upland ca. 3300-3100 BC [Ścibior 1991: 61].

The question remains whether the concept of a niche grave resulted from an internal transformation of the GAC funerary rite (of the Samborzec-Opatów group?) from the cist grave and stone-lined grave towards the niche grave or, as most researchers involved in the study of these issues believe, is a borrowing from the Pontic Area.

One of the traits setting Złota niche structures apart, rarely found outside Małopolska, is their rectangular shape. After reviewing the available data on ZC graves, it was shown that there were 60 rectangular features, 26 oval ones and 10 irregularly shaped [Witkowska 2014]. This readily visible disproportion between the number of oval and rectangular pits provoked a discussion on the chronological difference between the graves of the two shapes. The study excluded irregular-shaped pits because they can hardly be compared with the other types as their 'irregularity' follows from the poor state of feature preservation, inaccurate documentation and excessive freedom in the reconstruction of pit shapes. An exception in this context is the well-preserved grave 2, Książnice, assigned to phase I.

Below, there shall be a reference to the chronological division of the ZC suggested by Witkowska [2014].

To Phase I – proto-Złota – Witkowska assigned 8 features with oval pits and entrances placed on the longer side (Książnice, site 2, graves 3 and 4, Mydłów, site 37, grave 3, Święcica, site 30, feature 1a, Wilczyce, site 90,feature 10, Złota Nad Wawrem, grave 83, Złota Grodzisko I, grave 414, Żuków, site 1, grave 2).

To phase II – classic – Witkowska assigned 6 graves with an oval pit (Złota Nad Wawrem, grave 235b, Złota Grodzisko I, grave 60, Złota Grodzisko I, grave 141, Złota Grodzisko I, grave 160, Złota Grodzisko I, grave 161, Złota Grodzisko I, grave 448).

To phase III – late – Witkowska assigned 7 graves with an oval pit (Samborzec, site 1, grave XII, Złota Nad Wawrem, grave 244, Złota Nad Wawrem, grave 254, Złota Grodzisko I, grave 376, Złota Grodzisko I, grave 446, Złota Grodzisko II, grave 134, Złota, site 6).

Upon closer scrutiny of individual assemblages, it was shown that almost all certain features from phase I were indeed oval. Some doubts are raised only by the shape of feature 414, Grodzisko I, described by Krzak as oval; the feature has a rectangular pavement on the pit bottom, which may suggest that the grave was actually rectangular.

Among the 13 features dated to phases II and III, some are indeed subrectangular or their shape cannot be accurately determined (e.g. Złota, site Grodzisko I, feature 448; Złota, site Nad Wawrem, feature 235).

Thus, it appears that there are grounds for linking the oval shape of the grave pit to the initial – proto-Złota – phase, according to Witkowska's division (Fig. 14A, B).

At this point it is apt to examine the question of the occurrence of rectangular pits in assemblages assigned to particular chronological phases.

To Phase I, Witkowska assigned two such features (Książnice, site 2, grave 1, Stary Garbów, site 3, grave 1). The inventories of both graves were considered by her model Phase I assemblages [Witkowska 2014: 135, Fig. 46]. Without going here into a detailed discussion of the chronology of some vessel forms, considered by Witkowska to be proto-Złota type vessels, this author wishes to put on record his objection to such an early dating of both above-named assemblages. It is argued these are slightly younger than graves containing 'pure' GAC materials (of the type of Książnice, grave 3 and Wilczyce, grave 10; Wilk 2013: 333-334).

To Phase II, 20 graves with rectangular pits were assigned; while in Phase III, 22 such graves were included. Sixteen graves with rectangular pits have no accurate chronology. Hence, rectangular grave pits are characteristic of ZC phases II and III (Fig. 14, C, D).

What conclusions therefore can be drawn from this concerning the origins of both grave types?

Oval niches are common in the Eneolthic communities settling Black Sea steppes in the 4th millennium BC [Rassamakin 2004], in the CWC Kraków-Sandomierz group [Włodarczak 2006], CWC Sokal group [Machnik, Bagińska, Koman 2009] and Catacomb culture [Ślusarska 2006]. However, they are almost always perpendicular to the entrance shaft. Grave 12, barrow 23, Bohuslav [Androsov, Marina, Zavgorodnyi 1991], having a GAC amphora in its inventory [Szmyt 1999: 150] and cited by many authors as a key proof that the catacomb idea was imported from the Black Sea Area to Małopolska, in the opinion of this author does not at all resemble Złota structures (Fig. 15). First of all, it is a grave built on the classic T-plan with the entrance on the longer side of the niche, thus resembling more CWC and CC features.

Only in variety B of group II of Eneolithic graves from Northern Pontic steppes, distinguished by Yuriy Rassamakin [2004: 14, Fig. 1], do features sporadically occur that can be considered similar to oval Złota graves, e.g. grave 3 from Giurguleşti [Rassamakin 2004: 39, Fig. 28-1].

If Włodarczak's view is accepted that Late Tripolie groups had a share in the origins of the ZC and niche funerary rite in Małopolska and if one accepts the presence of oval grave pits in the oldest ZC phase, then one well may be disconcerted by the fact that the assemblages assigned by Witkowska to the oldest ZC development phase lack practically any eastern elements. Instead, all that one finds there are 'pure' GAC artefacts. Where as in the classic and late phases, the funerary rite is dominated by graves with rectangular niches, indicating close connections to GAC sepulchral architecture. It is in the classic phase that artefacts appear displaying traits of horizon A, the Baden culture and Late Tripolie group [Witkowska 2014: 138].

This paradox is hard to explain. At the current stage of research there are no grounds to believe in the local, Małopolska origins of niche graves. Perhaps one should consider the possibility that the niche grave in the ZC was borrowed from some other region of Europe than Black Sea steppes.

If, however, the hypothesis relating the origins of niche graves in the ZC to Pontic influence is true, then it must be emphasized that the 'eastern, steppe' catacomb concept took on a markedly local character, connected with strong megalithic traditions, in Małopolska.

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THE RECEPTION OF SOUTH-EASTERN CULTURAL PATTERNS: LATE NEOLITHIC AND NASCENT BRONZE AGE FLINT WORKING IN THE VISTULA DRAINAGE BASIN. THE CASE OF TROUGH-LIKE RETOUCH

One of the most original ways of fashioning flint tools throughout the period when flint was used for this purpose, the flat and semi-flat retouch, leaving long and parallel fine scars, oblique with respect to the artefact's longitudinal axis, has been defined best in the Polish professional archaeological literature by Bolesław Ginter and Janusz K. Kozłowski. Writing about Solutrean willow-leaf points and Late-Solutrean barbed points, they referred to this type of retouch as … *flat, very regularly lamellar, 'enpelure'* [1990: 59]. At the same time they observed that: *In the Neolithic, there appeared retouched blades with lamellar, oblique retouch, going well over into the upper surface of the artefact (so-called trough-like retouch). They are characteristic of the Cucuteni-Tripolie circle and the Funnel Beaker culture* [Ginter, Kozłowski 1990: 162].

The question of trough-like retouch has been discussed by us at an archaeological workshop recently organized by the SKAM Association [Libera, Zakościelna 2014]. We traced the presence and incidence of tools and/or weapons fashioned using this kind of retouch in the territory of present-day Poland during the Eneolithic and Bronze Age, leaving out from the discussion the technical aspects of fashioning artefacts (or giving them finishing touches). Neither did we argue with the hypotheses that tie the presence of trough-like retouch to the application of copper tools-retouchers. In our opinion, the fact that a similar retouch technique can be seen in Upper Palaeolithic assemblages settles the matter of the necessity to use metal tools sufficiently well. The presence, or rather the absence of copper retouchers from the inventories of those Eneolithic cultures that used trough-like retouch to shape tools is no argument to opt reasonably for such a possibility. Of course, it cannot be ruled out, either. All we are prepared to say is that such a possi-

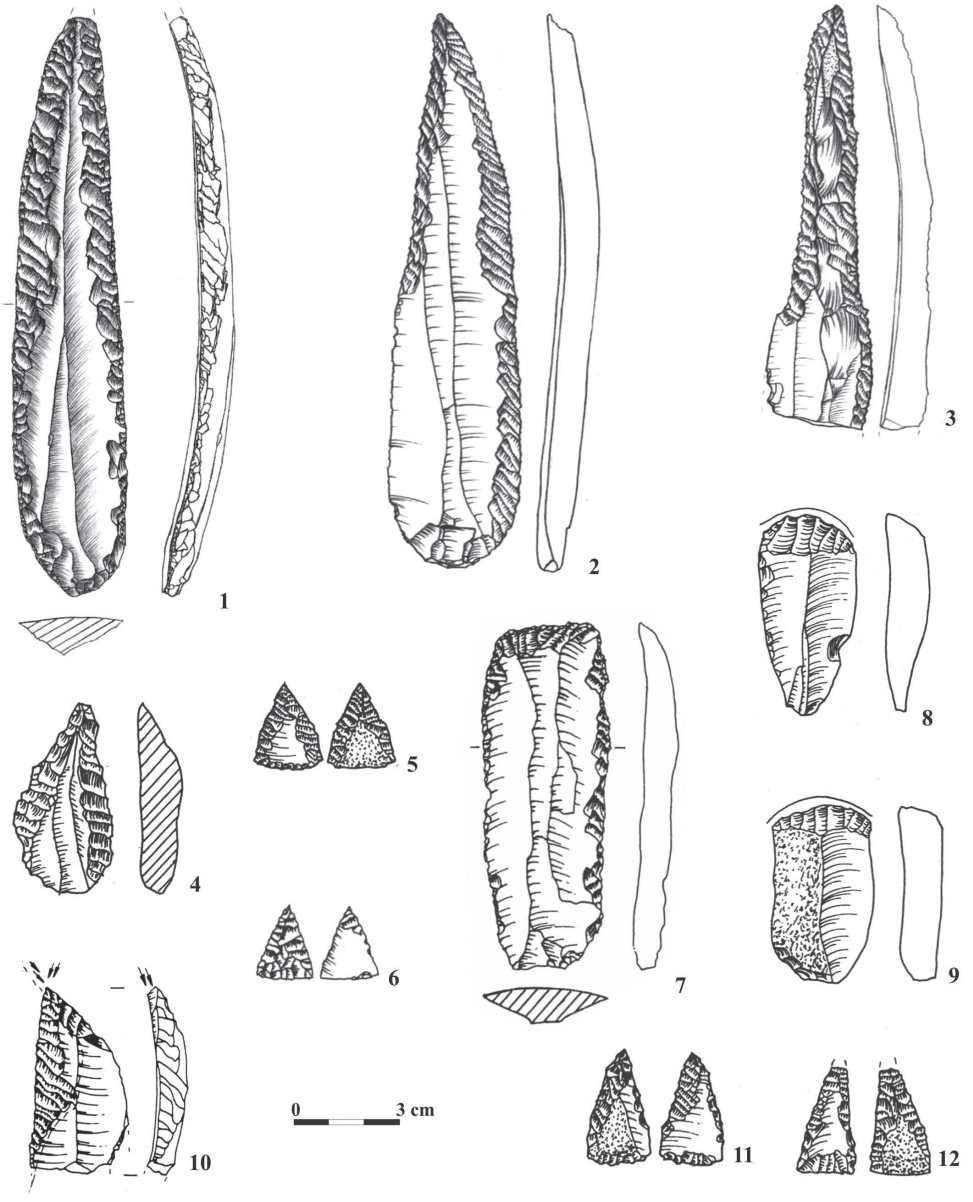

Fig. 1. Artefacts (Volhynian flint) from Lublin-Volhynia culture graves and settlements: 1 – Książnice 2, grave 5; 2 – Złota "Grodzisko" II, grave 101; 3 – Tyszowce 3, grave 1; 4 – Wierszczyca 29, barrow 1, grave 1; 5, 11, 12 – Gródek 1C; 6 – Sobibór 1; 7 – Łańcut 10; 8, 9 – Bronocice; 10 – Las Stocki 7. [*after* Zakościelna 1996; 2008]

bility was there but there was no necessity as such for use of copper retouchers and there must have been some other technical solutions thanks to which the retouch was performed. One of them may have been bone tools commonly called awls (or perforators), which are among artefacts frequently encountered in the adult male burials of the Lublin-Volhynia culture (LVC) [Zakościelna 2010: 150, Tab. 39, 181-182]. This matter can be settled by use-wear analysis and through experimental archaeology.

The study of the large series of artefacts made using trough-like pressure retouch and included in Eneolithic and Bronze Age inventories makes us believe that it comes in two varieties. The first is flat or semi-flat, very regular whose scars are shaped like oblique blade lets and are parallel to each other or, less often, perpendicular to the symmetry axis of the blade tool (or the retouched edge in the case of few flake forms). In this context fine scars as a rule cover large portions of artefact surfaces and in the case of retouched blades with continuous retouch on both edges, they come adjoin each other and completely cover the original surface. Such retouch is known as classic (Fig. 1:1). The second is usually semi-flat, but also flat edge retouch, with the length of fine scars usually equalling their width or only slightly longer, oblique or perpendicular to the symmetry axis of the tool (or the retouched edge), and less regular than the previous one. This is known as a pseudo-trough-like retouch (Fig. 1:2).

In the territory of present-day Poland, classic trough-like retouch is known solely from the inventories of the Lublin-Volhynia culture. For this culture's knappers, it was the principal and universal technique of fashioning the cutting edges of many tool types. It is observable on sites in all settlement regions, regardless of the raw material used. It was deployed to shape the fronts of some endscrapers, truncated pieces, triangular projectile points, and sometimes the stings of massive perforators, but above all, retouched blades. Indeed, it was in the manufacture of various kinds of retouched blades that this retouching technique was used to the full. In the inventories of homogenous settlements in Wąwolnica, site 6, and Las Stocki, site 7 (both in Puławy District), for which suitable statistics could be calculated, as many as 82.5 and 88.7 per cent, respectively, of this type of tools were made using trough-like retouch [Zakościelna 1996: 63]. Apart from classically retouched blades with parallel and convergent sides, there is a large group of partially retouched blades with at least one-third of their edges being formed using this type of retouch [Ibid. 65, Fig. 8]. Other retouch types, chiefly edge and abrupt ones, were applied absolutely marginally to the shaping of retouched blades. Quite often, however, they were supplementarily used. Some blades with continuous trough-like retouch on one edge have the other edge finely blunted or have butt-bulb parts formed in the same manner; no doubt for the specimens to be mounted in a haft.

The most spectacular trough-like retouched blades formed part of some grave assemblages of the LVC. These are mostly specimens with continuous convergent retouch on both edges, their sides worked to varying degrees and sharp, claw-like,

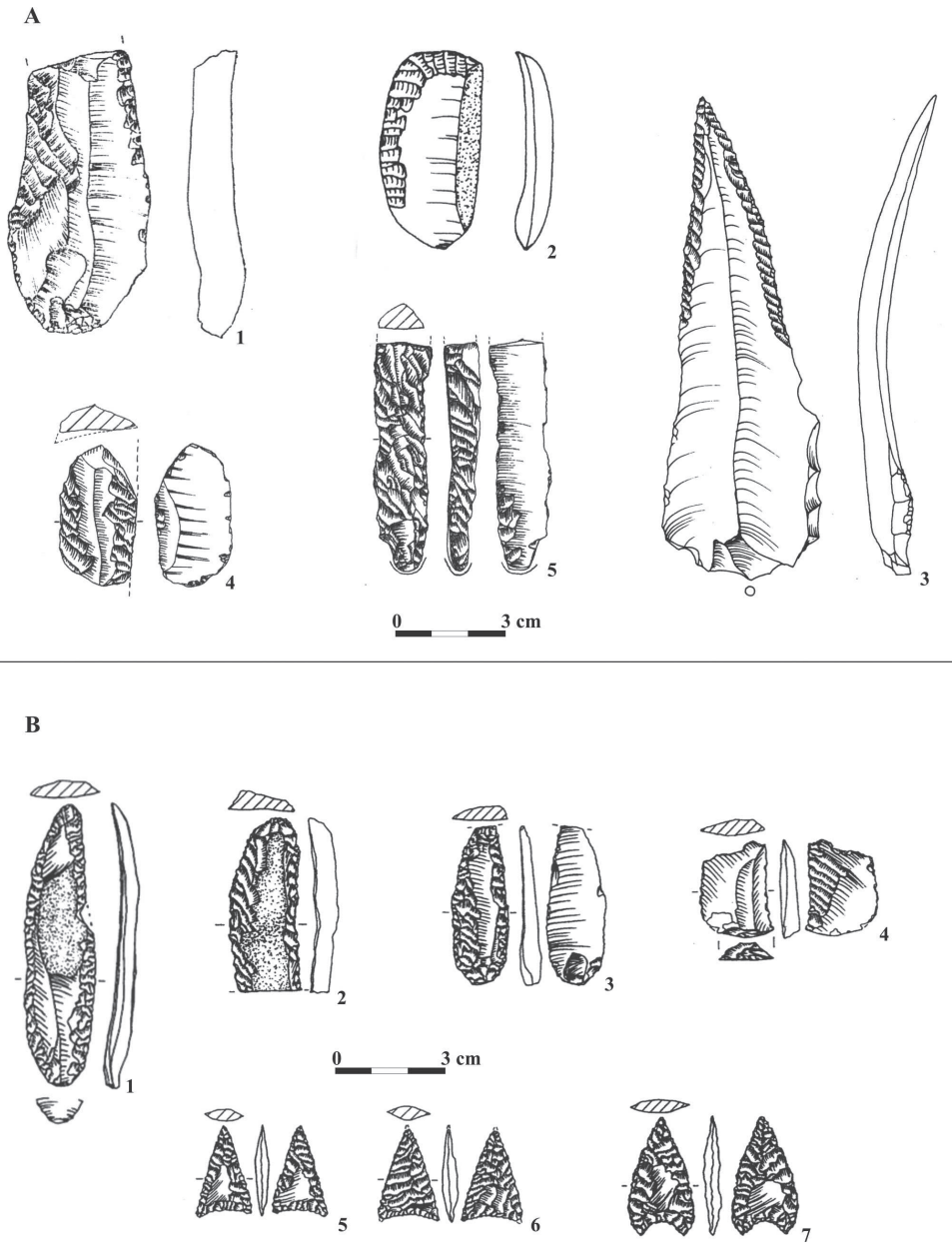

Fig. 2. Artefacts (Volhynian flint). A – from Funnel Beaker culture cemeteries and settlements: 1 – Sarnowo, tomb 4; 2 – Grójec Wielki 1; 3-4 – Bochotnica Kolonia, grave 1, 3; B – from Corded Ware culture barrows: 1 – Łubcze 25, barrow 1, grave 1; 2, 3, 7 – Łubcze 26, barrow fill 1; 4 – Łubcze 2, barrow fill 2; 5-6 – Wierszczyca 29, barrow 1, grave 1. [*after* Młynarczyk 1982; Pelisiak 2002; Libera, Zakościelna 2006; Machnik, Bagińska, Koman 2009]

more rarely endscraper-like, distal ends – resembling daggers [Zakościelna 2008; 2010]. This and the fact that they were discovered mostly on the chests of dead men argue in favour of the presumption that they served as parade daggers carried on the chest. Hence, the proposal to name them *retouched blade-daggers*. Known for their excellent workmanship, such artefacts are found only in the richest inventories of male burials as they were one of the most important attributes of high status [Zakościelna 2010: 166-167].

Retouch types characteristic of the Funnel Beaker culture (FBC) include above all edge, scaled and stepped retouch, while surface retouch is very rare. The opinion of Ginter and Kozłowski of 1990 quoted at the beginning – according to which trough-like retouch is characteristic of the FBC – was based not doubt on the findings arrived at by Bogdan Balcer in his 1983 work on Neolithic flint working. Relying chiefly on materials from 'Horodysko' in Gródek 1 C, Hrubieszów District, and considering this site as homogenous FBC settlement, he believed some triangular projectile points and some trough-like retouched blades belong to FBC inventories. It must be observed, however, that these artefacts lacked a good situational context and Balcer failed to take into account the multicultural character of the site on which the FBC occupation had been preceded by a long-lived LVC settlement and cemetery [Bronicki, Kadrow, Zakościelna 2003: 30, Fig. 4; Zakościelna 2010: 52-53].

On FBC sites, only single tools fashioned using trough-like retouch have been recovered from more or less credible contexts; only very rarely have they been found in assemblages. From the mound of megalithic tomb no. 4 in Sarnowo, Włocławek District, there was retrieved a butt fragment of a massive chocolate-flint retouched blade with continuous retouch on both edges and one edge obliquely retouched [Młynarczyk 1982: Tab. XI3]. Its presence is synchronized by Lucyna Domańska with the appearance of Volhynian flint goods and related by her to phase II-IIIA of the settlement in Kujawy [1995: 86, 87]. More recent materials include a Volhynian-flint endscraper on a blade fully fashioned using trough-like retouch found in a settlement in Grójec Wielki, Sieradz District [Pelisiak 2002: Fig. 11:6].

In the area occupied by the south-eastern FBC group, besides doubtful materials from Gródek 1C, we have few finds from the Nałęczów Plateau among several other places. They come from a flat cemetery in Bochotnica Kolonia, Puławy District [Gurba 1969: 94-98]. The context is certain in the case of the Volhynian flint fragment of a retouched blade with continuous retouch on both edges and a thick circularly polished distal end. The trough-like retouch goes over well onto the surface, its fine scars adjoin on both sides and cover completely the original blade surface. It was the only item found in grave 3 and it had been placed at the deceased's pelvis. In addition, in grave 1, whose grave goods included an amphora and a collared flask, there was found a Volhynian flint retouched blade with continuous, oblique, trough-like retouch on both edges; it was preserved only in fragments, though [Libera, Zakościelna 2006: Tab. 1, 2a, Fig. 1:2].

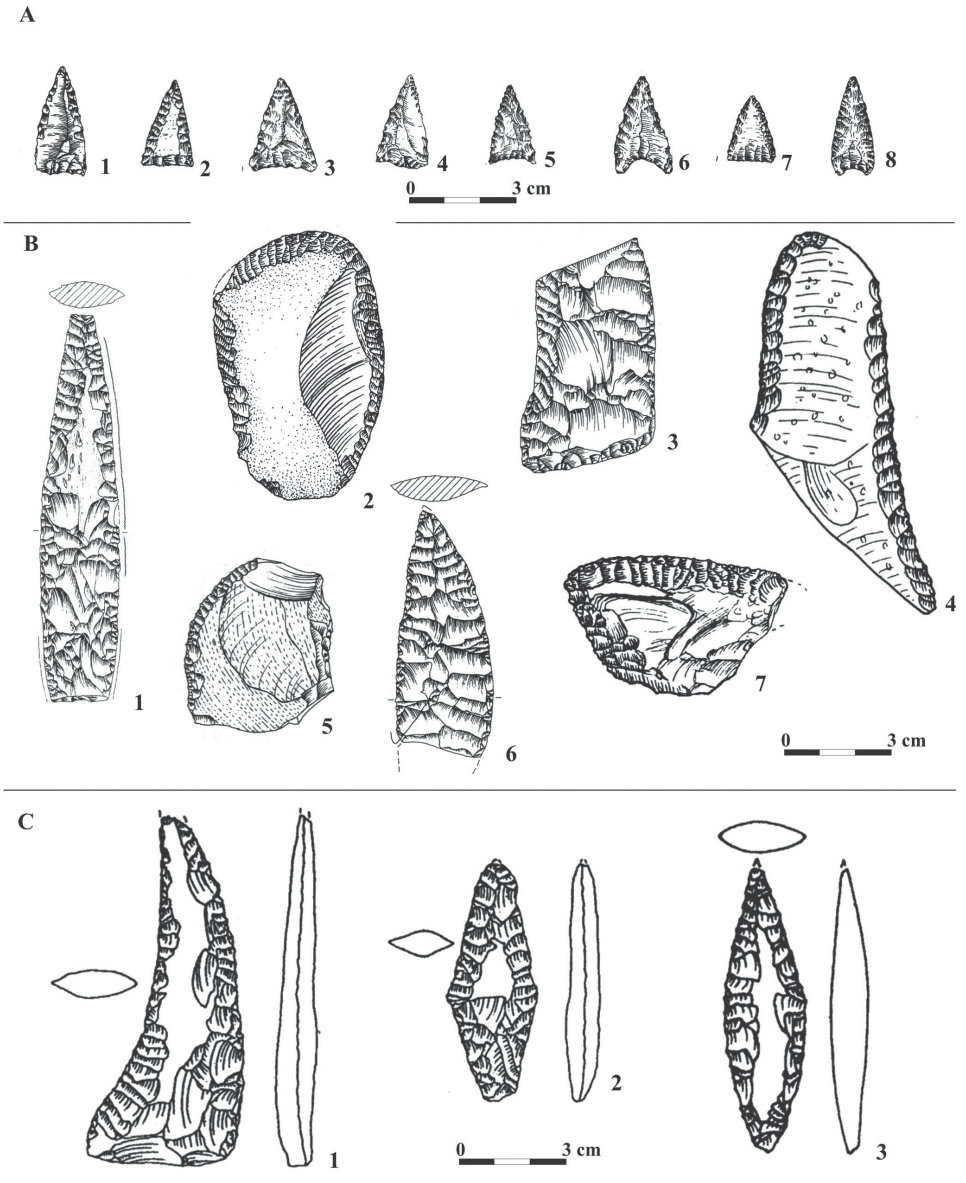

Fig. 3. Artefacts (Świeciechów, chocolate, Volhynian and erratic flint). A – from a cemetery of the Złota culture: 1-8 – Złota 'Nad Wawrem'; B – from Mierzanowice culture settlements and stray finds: 1 – Bodaczów; 2 – Majdan Mokwiński; 3 – unknown locality (Podkarpackie Province?); 4 – Piaseczno Kolonia; 5 – Sięganów 3; 6 – Jazłowiec; 7 – Słochy Annopolskie V; C – from a Strzyżów culture cemetery: 1-3 – Raciborowice-Kolonia II, grave 24 (1, 2), stray (3). [*after* Krzak 1976; Szmit 1929; Pelisiak 1991; Machnik 1978; Ginter, Rogozińska-Goszczyńska 1965; Libera 2001; Bargieł, Libera 2004]

We have two more FBC grave assemblages, containing triangular projectile points shaped using trough-like retouch: Stara Wieś, Łęczna District [Gurba 1960], and Łubcze, Tomaszów Lubelski District [Bagińska 2006]. Yet, most finds of trough-like-retouched tools associated with the FBC lack a good context and their provenance is uncertain. What is more, large 'homogenous' FBC settlements, of both the eastern and south-eastern groups, have not yielded any such specimens.

In the context of FBC inventories from the Polish Lowland, one must bear in mind parallel or semi-parallel, straight or oblique retouch in relation to the group of small leaf-shaped points, which are associated mostly with the materials of the Łupawa and Ustowo groups. By no means is this a common phenomenon – studies of 43 such points discovered in Pomerania showed that among them there were only four specimens fashioned using 'parallel' retouch, i.e. pseudo-trough-like [Małecka-Kukawka, Kukawka 1984: 13, Tab. I9; IV3, 6, 8]. Similar retouch types were used to manufacture a few laurel-leaf and tanged points, coming from the FBC Kujawy settlement region [Domańska 2013: Tab. 2:1-4; 44:1-6].

In the flint inventories of the Corded Ware culture (CWC), retouch techniques can be studied only through well-known funerary rites in Małopolska. Among many retouch types, no classic artefacts fashioned using trough-like retouch have been recorded; one can speak only of rare cases of pseudo-trough-like retouch. This technique was chiefly used to manufacture two artefact types: projectile points and retouched blades. For the first time, pseudo-trough-like retouch was observed in Małopolska materials on a retouched blade retouched to form an endscraper found in grave 1, barrow III, Brzezinki, Lubaczów District. Jan Machnik, publishing the source materials, drew attention to the unusual retouch of the artefact: r*etouched on both side edges and on its rounded distal end, in places 'trough-like' retouch can be seen* [1966: 243, Tab. XXXVII6]. These observations were borne out by the studies of Małopolska grave assemblages performed by Piotr Włodarczak [2006]. Machnik's opinion must have influenced Balcer's stance, who came to consider trough-like retouch an 'original' trait of the CWC Małopolska industry [1983: 230, 276], although he did not present any new convincing materials. This opinion has been discredited in recent years; despite a very large growth in the source base, only few new examples of tools (mainly blade or blade-flake ones and projectile points), mainly fashioned in whole or in part using solely pseudo-trough-like retouch, have been recorded. These are grave materials from Wójeczka, Busko District [Kopacz 1986: Fig. 8:5], Zielona, Proszowice District [Włodarczak 2004: Fig. 13:1-4], Lublin-Sławinek [Rejniewicz 2009: Fig. 5:1], Hubinek, Łubcze, Nedeżów and Wierszczyca, Tomaszów Lubelski District [Machnik, Bagińska, Koman 2009, Fig. 14:4; 41:3; 45:2; 48:7; 98:5, 8; 117:3, 4]. However, they not always come from grave assemblages; sometimes they were found in barrow mounds.

In the inventories of the youngest Eneolithic cultures the situation is very similar. The use of trough-like retouch, including its pseudo-trough-like variety as well, is limited to triangular or slender cordate projectile points as well as more or less

regular retouched blades with continuous retouch of one or both edges. They are found in the assemblages of both the Złota culture [Krzak 1976: Fig. 33a-c, d, h, i, l, o, p] and the FBC. In the latter, besides retouched blades and projectile points also some flake tools have their edges shaped using pseudo-trough-like retouch [Budziszewski, Włodarczak 2010: 71, retouched blades – Tab. XIX: VII-3, XXIII: X-8; projectile points – XXIX, XXXVII; sidescrapers and knife-like tools – XV: III-9 and III-12; XIX: VII-3, VII-4].

A mention must be made of few finds, mostly sidescrapers and triangular projectile points and single blade tools fashioned using pseudo-trough-like retouch, occasionally regular trough-like one, from north-eastern Poland. They were found on Neman culture sites in Sośnia and Woźna Wieś, Grajewo District [Kempisty, Więckowska 1970: 64-65, Tab. III1, XV11; Kempisty, Sulgostowska 1991: Tab. VIII1, 2, 5], while the Zedmar culture is believed to have produced projectile points found on sites in Dudka and Szczepanki, Giżycko District [Różańska 2011: Fig. 2:20-23].

The question of pressure retouch is no different in the cultures of the Early and Older Bronze Age. Among various retouch techniques, of both the surface and edge types, characteristic *bladelet-like fine scars*, resembling oblique trough-like retouch, can be seen only on single artefacts. Interestingly enough, their occurrence can hardly be narrowed down to specific typological forms. It was used to fashion some knife- and sidescraper-like flake tools, less often blade ones, and primarily bifacial tools, mass-produced at that time, both macrolithic ones – sickle-knives and points – as well as smaller forms – projectile points retouched on both sides in a flat, regular manner going well over onto the surface.

In the Mierzanowice culture, trough-like segmental retouch (segments comprising 4-5 rarely more fine scars) but above all pseudo-trough-like retouch were used to shape some ‘sickles’ and ‘projectile points’ as well. Such Mierzanowice-type sickle knives come from the eponymous cemetery [graves 47, 51, 84 and 143 – Bąbel 2013: Fig. 97:3; 103, 150:2, 229:3], but also occur as stray finds e.g. Mydłów [Libera 2001, Tab. XXIXe]. Among points, this technique was found to have been used to make some specimens of the Czerniczyn-Torczyn type found in such localities as Majdan Leśniowski, Chełm District, Bodaczów, Zamość District, Piastowo, Lubaczów District, Bachórz, Rzeszów District, and Szczury, Ostrów District [Libera 2001, catalogue] and on an asymmetric specimen from grave 55, Wojciechowice, Opatów District [Bąbel 2013: Fig. 342:4].

Pressure retouch, one resembling trough-like but mainly pseudo-trough-like retouch, on points and sickle knives is relatively often recorded. Unfortunately, these are for the most part stray finds and on many occasions they are preserved in fragments only, which makes them difficult to associate unequivocally with a specific cultural unit. As examples may serve a sickle knife with its distal end broken off and the central part of a point found in a settlement in Rovantsi, near Lutsk, in the context of the pottery of Strzyżów and Mierzanowice cultures [Tkach 2012:

Fig. 2:2; 6:7]. Other examples include similarly retouched, medium-sized leaf-shaped, rhomboid, subtriangular points, that cannot be unambiguously attributed to any known archaeological culture, e.g. Nida, Nowosielce, Gorliczna-Szewnia, Białowola, Bodaczów [Kozłowski 1923: Tab. XVI4; Libera 2001: Tab. Ic, d, f; IIIe; VIa].

Pseudo-trough-like retouch was far more often used to shape the cutting edges of various types of sidescrapers or knife-like tools found on sites associated with the early phases of the Mierzanowice culture. They are recorded among materials from settlements in Słochy Annopolskie, Siemiatycze District, [site V and 'Czerwony Borek' – Szmit 1929: Fig. 10a, Tab. X22, XI5, 12, 14], Piaseczno (now Piaseczno-Kolonia), Zawiercie District [Machnik 1978:Tab. XI15], Sięganów, Łask District, [Pelisiak 1991: Fig. 5:1; 6: 3, 4; 7: 5] or Majdan Mokwiński (now Mokvin), Rivne Oblast, Ukraine [Ginter, Rogozińska-Goszczyńska 1965: Tab. VIII3]. They were also found on the cemeteries in Mierzanowice and Wojciechowice [Bąbel 2013: 83:6; 112:1; 159:11; 231:1; 342:23].

With this 'Early Bronze' horizon, many projectile points are associated. They are triangular or almost cordate, surface or edge retouched using pseudo-trough-like or trough-like retouch. Their long series were recovered from the cemetery in Mierzanowice, e.g. in grave 40, out of over a dozen projectile points, six were fashioned using this type of retouch [Bąbel 2013: Fig. 83:2, 3, 15, 20-22].

Nor do we find any specimens fashioned using typical trough-like retouch among artefacts associated with the Strzyżów culture. We can mention only a few Raciborowice-type sickle knives bearing pseudo-trough-like retouch. They originate with both the eponymous cemetery in Raciborowice-Kolonia, Chełm District (graves, 1, 15, 24 and 26), and stray finds from the vicinity of Hrubieszów and Brzeźno, Chełm District [Libera 2001, catalogue; Bargieł, Libera 2004: Fig. 4:d]. It is hard to tell, however, how often similar retouch was used on points, because we have only a single pseudo-trough-like-retouched specimen from grave 24 in Raciborowice, Hrubieszów District [Bargieł, Libera 2004: Fig. 4:a] and akin artefacts of unequivocal or unknown cultural contexts, e.g. from a multi-culture settlement in Łopiennik Dolny, Krasnystaw District [Zakościelna, Gurba 1993; Libera 2001: Tab. IIIa], as well as some stray finds for instance from Teptiuków, Hrubieszów District, Marynin, Krasnystaw District, or Białka, Łęczna District [Libera 2001: Tab. IIIe, f; VIIIb]. However, triangular projectile points manufactured using the retouch types under discussion were discovered in grave 7, Raciborowice cemetery [Ślusarski, Ślusarska-Polańska 1988: Fig. 9:5-12].

A similar problem is posed by flake and blade-flake forms. The assortment of this type of tools, which can be associated with the Strzyżów culture with any certainty, is very meagre indeed [Bargieł 2006a: 78-81]. We know them only from graves 1 and 9, Raciborowice cemetery [Ślusarski, Ślusarska-Polańska 1988: Fig. 3:8; 11:1]. In addition, from grave 6 of this cemetery, an isolated find comes of a blade with continuous retouch on one entire edge, in part regular oblique

trough-like and in part pseudo-trough-like [very similar to LVC artefacts; Zakościelna 1996].

The above review of Eneolithic inventories and others dating back to the Early and Old Bronze Age from the point of view of the presence of trough-like retouch permits us to draw the following conclusions:

1. Classic trough-like retouch as a skill of shaping the cutting edges of tools or weapons is found only in the LVC. It was commonly used in all settlement regions regardless of the kind of flint and tool type: retouched blades, truncated pieces, triangular projectile points, some endscraper fronts and perforator stings were all made using this technique. It is a trait that unifies the picture of LVC flint industry throughout the culture's range; in the present-day territory of Poland, it can be considered a culture marker.

2. In other Eneolithic cultures, trough-like retouch is encountered only sporadically and should be interpreted as a sign of relations with the LVC (in the case of well-documented finds) or evidence of older LVC settlement on a site. In the case of the FBC, especially its Małopolska group, relations with the Tripolieculture are also possible in the grey area between the two cultures.

3. In no later group, either Eneolithic or Early Bronze one, is trough-like retouch recorded. What occurs instead is similar retouch, taking two forms: segmental trough-like retouch (rare) or pseudo-trough-like retouch, which is more frequent. Both forms are observed on some retouched blades, partially retouched blades, sidescrapers, knife-like tools but also on projectile points, sickle knives, and points/daggers.

Of course, trough-like retouch is not an 'invention' of LVC knappers. Its origins are believed to be in Anatolia where it appeared the earliest – already in the pre-ceramic Hacilar layers and in the pre-ceramic and ceramic Çatal Hüyük layers [*after* Lech, Młynarczyk 1981: 26-27]. In Europe, however, it is recorded only in the Eneolithic Gumelniţa-Karanovo VI-Kodjadermen cultural circle and in the Varna culture in the eastern Balkans. Interestingly enough, in these groups, it was used primarily (actually solely) in the manufacture of points of all kinds and sizes [Păunescu 1970: Fig. 31:2, 10, 12; Lichardus, Lichardus-Itten 1995: 234-237, Fig. 3; Manolakakis 2005: Pl. 85: 9, 108: 2, 119: 5, 142: 1-3, 9, 10], but it was not used to fashion retouched blades.

It found broader and more common application in the Northern Pontic Area occupied by the communities of the Cucuteni-Tripolie complex in the Late Neolithic and Eneolithic. It appeared there towards the end of stage BI in settlements on the Dniester River in Polivanov Yar, Chernivtsi Oblast [Popova 1980: 157; 2003], and Zalischyky, Ternopil Oblast [Vynohradova 1973 68-70], in the wake of the macrolithization of blade manufacture and the emergence of early flint axes, i.e. the manifestations of a technological breakthrough in flint working. The greatest number of tools fashioned in this manner is yielded by BII stage settlements and this is true for the entire area occupied by Tripolie ommunities [Chernysh 1982; Engovatova

1993], including also the Dnieper Upland, Northern Pontic Area. There, especially many specimens were found in the settlement in Vladimirovka, Kirovohrad Oblast [Chernysh 1951].

The multi-layer site in Polivanov Yar permits the capture of the moment when trough-like retouch appeared in the Tripolie culture of flint working. According to Tatiana Popova [2003], in the oldest settlement horizons corresponding to a transitional phase from Tripolie A to Tripolie BI (P-J III1) and stage BI (P-J III2), there are no tools shaped using trough-like retouch. They appear only in the third settlement horizon (P-J II1), correlated to the transition from stage BI to stage BII, together with larger preforms and early flint axes. In the materials of the next horizon (P-J II2) – corresponding to stage BII – this is already the principal technique of fashioning tools, especially retouched blades, but also triangular projectile points. The situation is similar in the youngest layers of the site in question (P-J I1-2) related to stages CI and CII. Thus, beginning with stage BII, this type of retouch is the principal technique of manufacturing blade tools, mainly retouched blades, as well as projectile points. This can be seen in materials from many sites, for instance, Bilcze Złote [Kadrow *et al.* 2003; 2013].

Adopting a spatial perspective closer to the territory of Poland, one can see that trough-like retouch appears together with the expansion of Tripolie communities to Volhynia and the extension of settlement along the Dniester as far as its upper course in stage BII. The expansion was caused by a demand for good-quality Volhynian raw material created by the macrolithization of the flint industry [Zakościelna 1996; Kadrow, Zakościelna 2000]. At that time, the flint-bearing areas were settled by the communities of the late (IIb) phase of the Malice culture and the LVC culture, especially its classic phase II (4200-3800 BC) [Kadrow, Zakościelna 2000]. Thus, the populations of both cultures had a chance to encounter the idea of trough-like retouch. Advanced by Anna Zakościelna [1996: 93], the hypothesis that Late Malice communities mediated in the transmission of the idea to the LVC, albeit possible, is barely verifiable, as no culturally homogenous phase-IIb Malice-culture settlements are known in Volhynia. All the more so because in Malice settlements from that period located within the Polish range of this culture, no trough-like retouched tools have been found yet. Hence, it should be concluded that the idea of trough-like retouch came to the knowledge of LVC populations through contacts with Tripolie culture communities, which took place (in the late 5th and in the first half of the 4th millennia BC) both in the upper Dniester drainage and between the Bug and Horyn rivers. Curiously enough, these contacts manifested themselves primarily in flint working and in a manner typical of LVC populations, i.e. selective. For instance, these communities did not adopt flint axes, nor do we observe any Tripolie impact on their pottery.

The presence of trough-like and pseudo-trough-like retouch in the inventories of the Late Eneolithic cultures of Małopolska may be a result of the impact of both the forest zone and Black Sea steppes. The former direction would be supported by

finds (vessel forms and ornaments) recorded above all in the Sokal group as well as outside it, and having good analogies in the Middle Dnieper culture. Similarities are also visible in flint inventories. This is particularly true for projectile points, retouched blades and, possibly, partially retouched blades. Trough-like and pseudo-trough-like retouch was principally used to fashion triangular, rhomboid and leaf-shaped projectile points [e.g. grave 53, Strelitsa – out of 26 specimens, at least a half were retouched in this manner; Artemenko 1967: Fig. 65]. Besides pseudo-trough-like retouch, what attracts attention is the apical fragment of a blade completely covered with surface retouch on one side from Łubcze 24, barrow 2, grave 1 [Machnik, Bagińska, Koman 2009: Fig. 41:2], finding no analogy in Małopolska inventories, instead pointing to connections with the slender blade points of the Middle Dnieper culture [Artemenko 1967: Fig. 57:3; 59:24-26]. As yet another possibly common element one can propose triangular projectile points or those resembling cordate ones with a strongly indented proximal end and side edges shaped, using fine denticulate retouch. In the Polish territory, they are known so far from the only 'Middle Dnieper' grave assemblage recovered in Młodów-Zakącie [Machnik, Pilch 1997], and from some 'corded' sites, as for instance a grave in Mydłów, which yielded a series of 27 specimens [Bargieł 2009]. In the Złota culture, too, a 'Middle Dnieper' impact can be observed [niche graves, 'Fatianowo' axe cutting edge – Złota, grave 355 (43) dated to 4155±30 BP; Krzak 1976: 266, Fig. 11], which may explain the presence of pseudo-trough-like retouch in the group of triangular projectile points or slender cordate ones, as well as blades continuously retouched on one or both edges.

'Middle Dnieper' elements in Małopolska inventories may be a result of direct contacts between Middle Dnieper culture populations and a group of CWC communities, controlling the Volhynian flint outcrops in the drainages of the Styr and Horyn rivers [Swiesznikow 1967] Elements believed to be 'Middle Dnieper' ones in the flint working of the Sokal group [and, more broadly, in the Corded Ware culture] may constitute a direct or indirect impact of the Pontic environment where pseudo-trough-like retouch is often encountered on sidescrapers, various forms of projectile points, including denticulate ones with indented proximal ends [Razumov 2011]. As far as non-flint materials are concerned, the impact is seen in 'Middle Dnieper' pottery being recorded in the 'Inhul' graves of the Catacomb culture on the lower Boh River [Kločko, Koško 2011: 268-269].

We do not know the mechanisms of how and through what channels the impact or borrowings could occur in the Early Bronze Age (Mierzanowice and Strzyżów cultures). With respect to flint goods, especially large bifacial forms (points and sickles), the impact resulted in the use of surface retouch, mostly pseudo-trough-like. There are no doubts, however, that these artefacts (especially leaf-shaped points with cutting edges close to the proximal end and specimens with a marked tang), encountered especially in Małopolska, result from some relations with the Early Bronze communities of the Pontic Area. The presence of trough-like and

pseudo-trough-like retouched artefacts, alongside other ‘Pontic’ elements such as niche graves, ‘imports’ (or imitations) of ‘Inhul-type’ shaft-hole axes, (former Chełm Province), Pidlissia-type copper shaft-hole axes (Rudna Mała, Munina – on the upper San River), and fluted maces in the drainage basins of the Bug and Wieprz rivers and on the middle San, follows no doubt from close contacts with the populations of the Yamnaya, Catacomb or Babyno cultures [Kločko, Kośko 2011].

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REFERENCES

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

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

Androsov A.V., Marina Z.P., Zavgorodniy D.I.
1991 Eneoliticheskiy kurgan u sela Boguslav v Prisamare. In: I.F. Kovaleva (Ed.) *Problemy arkheologii Podneprovia,* 4-19. Dnepropetrovsk.

Androsov A.V., Melnik A.A.
1991 Kurgany rannego bronzovogo veka Krivorozhia s zoomorfnymi konstruktsiyami. In: *Problemy arkheologii Podneprovia*, 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 Podneprovia v epokhu bronzy. *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 Werszczycy, pow. Tomaszów Lubelski na Grzędzie Sokalskiej: wyodrębnienie grupy sokalskiej kultury ceramiki sznurowej, *Archeologia Polski Środkowowschodniej* 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 bronzy 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 hrobnyts 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 Mydłowa, pow. opatowski, woj. świętokrzyskie. In: H. Taras, A. Zakościelna (Eds), *Hereditas praeteriti. Additamenta archaeological 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. Otroshenko *et al.* (Eds), *Na poshanu Sofiyi Stanislavivny Berezanskoyi:* 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 Kmiecińskiemu,* 31-50. Łódź.

Bátora J.
2003 Kupferne Schaftlochäxte in Mittel-, Ost- und Südosteuropa. *Slovenská Archeólogia* 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. *Arkhelohiya* 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 Schyłkowoneolityczne topory kamienne z terenu województwa chełmskiego. Metrologia. Zagadnienie utylizacji egzemplarzy uszkodzonych i destruktów, *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. Kośko (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 seredniodniprovskoyi 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 arkheololohiyi 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. Kośko, 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 doslidzhennya z archeologii Skhidnoi Ukraini* 7: 73-75. *Lugansk*.

Burtănescu F.
2002a *Epoca timpurie a bronzului între Carpaţi şi Prut.* Bucureşti.
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. Kośko (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 Stepi.* Kishiniev.

Cherniakov I.T.
2004 Akkembetskiy kurhan. In: S.M. Liashko, N.B. Burdo, M.Yu. Videyko (Eds), *Entsyklopediya trypilskoyi tsyvilizatsii* 2, 11-13. Kyiv.

Chernysh E.K.
1951 Tripolskie orudiya truda s poselenia u. s. Vladimirovki. *Kratkie soobscheniya Instituta Istorii Materialnoy Kultury* 40: 85-95.
1982 Eneolit Pravoberezhnoy Ukrainy i Moldavii. In: V.M. Masson, N.Ya. Merpert (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, *Memoria Antiquitatis* 9-11 (1985): 141-161.

Czebreszuk J.
2001 *Schyłek neolitu i początki epoki brązu w strefie południowo-zachodniobałtyckiej (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-Prutskogo mezhdurechia*. Kishinev.
1982 *Materialy raskopok arkheologicheskoy ekspeditsii na Srednem Prute (1975-1976 gg.),* Kishiniev.
1986 *Moldavia i sosedniye territorii v epokhu bronzy.* Kishinev.
2002 *Die äneolitischen und bronzezeitlichen Metallfunde aus Moldavien.* Prähistorische *Bronzefunde XX/ 9*. Stuttgart.

Dergachev V.A., Manzura I.V.
1991 *Pogrebalnye kompleksy pozdnego Tripolia.* Kishiniev.

Domańska L.
1995 *Geneza krzemieniarstwa kultury pucharów lejkowatych.* Łódź.
2013 *Krzemieniarstwo horyzontu klasycznowióreckiego kultury pucharów lejkowatych na Kujawach.* Łódź.

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

Engovatova A. V.
1994 *Kremnevaya industria tripolskoy kultury (po materialam pamiatnikov dnestro-dneprovskogo mezhdurechia).* (*Avtoreferat dissertatsii na soiskanie uchonoy 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 kontinentaleuropaische Voraussezungen.* Lund.

Furholt M.
2003 Die absolutchronologische Datierung der Schnurkeramik in Mitteleuropa und Südskandinavien. *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 Znaleziska archeologiczne w Hrubieszowie i okolicy, *Wiadomości Archeologiczne* 23(1): 104-111.

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

Gavrilov A.V., Toschev G.N.
2012 Novye pamiatniki epokhi bronzy v Krymu. *Starozhytnosti stepovogo Prichornomoria 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* VI/ 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 Iziumskom uezde Kharkovskhoy 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., Kośko A.
2011 Z badań nad chronologią i typogenezą kujawskich kurhanów starosznurowych. 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., Kośko A., Razumow S.
2014 Identyfikacja kulturowo-chronologiczna cmentarzysk „wczesnobrązowych" na stanowisku Pidlisivka 1. In: A. Kośko, 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 Gabułtów/ Cmentarzysko kultury ceramiki sznurowej i trzcinieckiej w Gabułtowie. *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., Toschev 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: Á. Patö, A. Barczi (Eds), *Kurgan Studies. An environmental and archaeological study of burial mounds in the Eurasian Steppe. BAR Interational 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 millenium 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., Kośko A., Włodarczak P.
2014 Komponent tradycji kultur ceramiki sznurowej. Amfory w północno-zachodnio nadczarnomorskich grobach kultury jamowej, In: A. Kośko, 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, 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 Malżyce, 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 krzemiennego kultury bodrogkereszturskiej i grupy Lažnany. *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 epischnurkeramischen karpatenländischen Kulturkreises in der Frühbronzezeit. In: B. Hänsel, J. Machnik (Eds), *Das Karpatenbecken und die osteuropäische Steppe. Nomadenbewengungen 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. Kośko (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., Sokhackiy 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. Kośko (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. Kośko (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 absoliutnogo datirovaniya katakombnoy kultury Severnogo Prichernomoria. *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 southeastern 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 Rozvytok ozbroyennia „shnurovykh" 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., Kośko A. = Kločko V.I., Kośko 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. Kośko, 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 szlakow bałtycko-pontyjskiego międzymorza.(In:) M. Ignaczak, A. Kośko, 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. Kośko, 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 starosznurowym 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., Kločko 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 Millenium BC.A. outline of research project. In: A. Kośko, 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. Kośko, M. Szmyt (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza IV – I tys. przed Chr., Archaeologia Bimaris Dyskusje* 4, 11-18. Poznań.

Kośko A., Klochko V.I., Olszewski A.

2012 Ritualniy obiekt naselennia prichornomorskoyi kulturnoyi spilnoty doby rannoyi bronzy na r. Sian, *Arkheolohia* 2: 67-75.

Kośko A., Langer J.J., Szmyt M.

2000 Painted Pottery as a symptom of Tripolye "influence" in the circle of Neolithic Vistula cultures. In: A. Kośko (Ed.) *The Western Border Area of the Tripolye Culture, Baltic-Pontic Studies* 9: 282-288.

Kośko 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.

Kośko 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: Kośko 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.

Kośko A., Szmyt M.

2009 Central European Lowland Societies and the Pontic Area in the 4th – 4th/3rd Millennium BC. In: A. Kośko, 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. Kośko, 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.

Krywalcewicz M.
2007 *Prorwa 1. 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 Měděnáindustries kultury zvoncovitých pohárů ve střední Europě. *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 *Starazhytnastsi pozniaga nealitu i ranniaga peryiadu bronzavaga veku Belaruskaga Paniamonnia.* Minsk.

Latynin B.A.
1967 Molotochkovidnye bulavki, ikh kulturnaya atributsiya i datirovka. *Arkheologicheskiy 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 serednioyi techi r. Sluchi (s. Kolodiazhne na Volyni). In: *Zapysky Vseukrainskoho arkheolohichnoho 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 glacigenic 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 rynienkowaty 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 südskandinavischen Spätneolithikums. NordiskeFortidsminder,* 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., Kośko 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 Ziem Polskich* 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. Kośko (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. Wysoczański (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 Kośko 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 Nyżni koło Drohobycza.* Kraków.

Machnik J., Pilch A.
1997 Zaskakujące odkrycie zabytków kultury środkowodnieprzańskiej 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. Krzywcza, *Rocznik Przemyski* 32(3): 3-28.
1998 Kurhan ludności kultury ceramiki sznurowej z przełomu III i II tysiąclecia przed Chrystusem w Woli Węgierskiej, gm. Roźwienica, 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. Raczky (Eds), *Morgenrot der Kulturen. Frühen Etappen der Menschheitsgeschichte in Mittel- und Südosteuropa. Festschrift für NándorKalicz zum 75. Geburstag*, 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. Kośko, V. Klochko (Eds), *Między Bałtykiem a Morzem Czarnym. Szlaki międzymorza 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. Kośko, 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. Badania z lat 1984 -2014. Archaeologia Bimaris. Monografie* 6, 247-274. Poznań.

Maleev Y. M.
1980 Vostochniye rubiezhy rasprostranieniya kultury sharovidnykh amfor. In: *Problemy eneolita stepnoy i lesostepnoy polosy Vostochnoy Evropy. Tezisy 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 Ząbie-Szestno.* Warszawa.

Manolakakis L.
2005 Les industries litiques énéolitques 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 bronzy 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. Neamţ – «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. Kośko (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 krzemienny 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 bronzy 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 Materialy 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 Kaukaza. In: *Voprosy okhrany, klassifikatsii i ispolzovaniya arkheologicheskikh pamiatnikov,* 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. Lutsk.
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. Lutsk.
2010 *Pripontiys'ki etnokul'turni vplivi na teritoriy zakhidhoy Volyni za dobi bronzi.* In: L.D. Strocen', M.O. Yagodins'ka (Eds) Aktual'ni problemi arheologiy. Tezi mizhnarodnoy naukovoy konferenciy 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 Volini ta Polissya. Storinki istoriy Kamin'-Kashipshchini, 236-239. Luc'k.

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

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

Ossowski G.
1886 Przyczynek do wiadomości o grotach krzemiennych znajdowanych 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 badeńskiego 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 Á., Barczi A. (Eds)
2011 *Kurgan Studies. An environmental and archaeological study of burial mounds in the Eurasian Steppe. BAR Interational Series* 2238. Oxford.

Pãunescu Al.
1970 *Evoluţia uneltelor şi armelor de piatră cioplită descoperite pe teritoriul României, Biblioteca de Arheologie XV.* Bucureşti.

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 gruppa. In: *Pamiatniki tripolskoy kultury v Severo-Zapadnom Prichernomorie,* 81-124. Kiev.

Popova T. A.
1980 Kremneobrabatyvayuscheproizvodstvotripolskikhplemen (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 (tezisy 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. Kośko (Ed.)*: Eastern Exodus of the Globular Amphora People, Baltic-Pontic Studies* 4: 112-132.
2004 *Die nordpontische Steppe in der Kupferzeit.* G*räber 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 millenium BC)*?* 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,* 113-138. Budapest.

Rassamakin Y.Y., Evdokimov G.L.
2011 O severnoy granitse raspostraneniya pogrebeniy v kamennykh yaschykakh epokhi ranney bronzy. 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.

Różańska 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 bronzy 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 bronzy 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 USS.I.* 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 Uniwersytetyu 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 slavanskoy 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 sverlennye 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 *Corded 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 Zakarpatia (eneolit, bronza i rannee zhelezo),* 63-74. Kiev.
1990b Stzhizhovskaya kultura. In: A.P. Chernysh (Ed.), *Arkheologiya Prikarpatia, Volyni i Zakarpatia (eneolit, bronza 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 Levelek* 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.* Glob*ular 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. Kośko, 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 przykady 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 Millenium 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. Kośko (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 Archeologiského 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.), *Pradzieje 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. Kośko (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 voprosu 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 bronzovyi vek). In: *Materialy ta doslidzhennia z arkheolohii 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 arkheolohii Podniprovia,* 82-90. Dnipropetrovsk.

Tkach V.

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

Toschev G.N.

1991 Zapadnyi areal pamiatnikov katakombnoy kultury. *In: Katakombnye kultury Severnogo Prichernomoria,* 85-100. Kiev.

1998 Pogrebeniya s kostianymi priazhkami epokhi sredney bronzy v Krymu. In: G.N. Toschev (Ed.)*, Problemy izucheniya katakombnoy kulturno-istoricheskoy obschnosti (KKIO) i kulturno-istoricheskoy obschnosti mnogovalikovoy keramiki (KIOMK),* 117-125. Zaporozhe.

2002 Pogrebalnye kompleksy s dereviannymi konstruktsiami epokhi ranniey bronzy Kryma. In: *Severnoe Prichernomorie ot eneolita k antichnosti,* 99-111. Tiraspol.

2007 *Krym v epokhu bronzy.* 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 Malżyce, Kazimierza Wielka district/Kurhan kultury pucharów lejkowatych w Malżycach, pow. Kazimierza Wielka. *Sprawozdania Archeologiczne* 63: 203-219.

Tupchienko M.P.
1993 Robota arkheolohichnoyi ekspedytsii Kirovohradskoho 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 Gabicz, 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 Karaków*. 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 Samborzec (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 communaute 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 Archaologie 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. Kośko, 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), *Koszyce, 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 Kośko 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. *Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego* 31: 101-114.

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