FROM FARMERS TO HEROES? ARCHAEOLOGICAL STUDIES IN HONOR OF SŁAWOMIR KADROW
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THE CRIMEA-JUTLAND ROUTE AND FLUTED MACE DISTRIBUTION (2500–800 BC). 21ST-CENTURY ATTEMPTS TO UPDATE THE CONCEPTION AND SUGGESTIONS FOR FUTURE RESEARCH

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Abstract

The article discusses the new finds of fluted maces (Type B) in the Baltic-Pontic Area. The first absolute dating of a Type-A mace is offered and two mace occurrence horizons are characterised, one referring to the second half of the 3rd millennium BC, and the other to the second half of the 2nd and the early 1st millennia BC. The topogenesis and cultural attribution of the maces are suggested and their role in establishing long-distance transit routes is described.

Keywords: stone maceheads, intermarine routes, Baltic-Pontic area, fluted maces, shaft-hole axes

Introduction

Stone maces began to be recorded in the studies of the prehistory of the area between the Baltic and Black Seas as early as in the 19th century. In the 1970s and 1980s, stone maces acquired an interregional aspect, owing to the preliminary programmes of their systemic archaeological and historical studies[1]. Moreover, a key intellectual stimulus was provided by Marija Gimbutas and her studies into the Bronze Age in Central and Eastern Europe, in which she inspiringly discusses long-distance transit routes[2].

1. Fluted maces in programmes tracing 'intermarine routes'

The first attempt to record the effects of the preliminary programmes was made at an international symposium on the archaeology of the area between the two seas, held in Brest (Belarus) in 2000[3]. The symposium focused on fluted maces as a diagnostic trait in the identification of the Crimea-Jutland route or, in broader terms, on the reception routes of a package of socio-organisational patterns originating with Middle-Eastern civilisations.

This approach was expanded – as a set of interdisciplinary studies – in the 2002 publication 'Fluted Maces in the System of Long-Distance Exchange Trails of the Bronze Age: 2350–800 BC'[4], in which the origins of maces are discussed by a linguist/historian, an archaeologist/historian of the Middle East, a historian of Anatolia, and archaeologists of the Baltic-Pontic Area[5]. Interdisciplinary studies of the origins of fluted maces were continued at international symposia in Tiraspol (2002) and Wrocław (2005)[6].

1 Kośko 1979, 39, map 8; 1988, 179; Berounska 1987.
2 Gimbutas 1965, 47–52; fig 15.
3 Kośko 2001.
4 Kośko (Ed.) 2002a.
5 Popko 2002; Taracha 2002; Tyborowski 2002; Klochko 2002; Kośko 2002a.
6 Kośko 2002b.

The early 21st century witnessed a clear rise in interest in the cultural contexts of mace discoveries, especially of fluted specimens, as reflected in the proliferation of research programmes centred on the archaeology of intermarine (Baltic and Black Seas) routes. The research results they produced were presented at successive symposia in Obrzycko held by the Institute of Prehistory of Adam Mickiewicz University in 2008[7].

The current research proposals mentioned in the title speak in favour of the continuation of the study of the conception of the Crimea-Jutland route, now more appropriately known as the project of Pontic-Baltic routes. They fall into three major sub-programmes: **(a)** major expansion of the source base – a list of fluted maces (*see* Catalogue), **(b)** emergence of an offer of analytical correspondence between stone and metal markers of the routes in question and their references to Middle Eastern civilisations[8], and **(c)** a new taxonomic-conceptual and chronometric setting in the study of the cultural background of the Baltic-Pontic Area in the second half of the 3rd millennium BC (*Yampil Programme*)[9] and the 2nd millennium BC, in particular the Trzciniec Cultural Circle (TCC) as a borderland community living between Europe's East and West (*Bukivna* and *Catalogue of Barrow Cemeteries* projects)[10].

2. Fluted maces and Baltic-Pontic transit routes – new data from the last two decades

The importance of new sources – successive specimens of fluted maces recorded in the Baltic-Pontic Area – shall be presented below.

a. Updating of discussions on taxonomic, chronometric and topogenetic aspects of mace finds

When the place of fluted maces in the system of intermarine routes was defined in 2002, 84 specimens were taken into account[11]. These were chiefly specimens without any original context, or so-called stray finds.

When considering specimens coming from the Baltic area (drainage basins of the Vistula and Oder), what catches the eye is the total absence of typo-chronologically early maces – either of Type A or Type B (fluted) – from grave goods (or ceremonial grave contexts) from the 3rd millennium BC. This is clearly seen in the case of populations of the Corded Ware culture. In the same period, a different situation is observed in the Black Sea drainage basin, where the beginnings of mace use in funerary rites could be directly traced to Catacomb culture populations. Importantly, the very beginning of the presence of maces on the middle Dniester – around Yampil – can be now radiocarbon dated to 2669-2419 BC (*see* Type A 'pear-shaped' specimen from Prydnistryanske, site 1, I/4[12]). This fact proved crucial to the determination of the geographical origins of maces in the Baltic-Pontic Area (see Sect. 3). They were considered a 'Pontic invention', or rather a Middle Eastern one, originally received in the North Pontic cultural area[13]. In the second half of the 3rd millennium BC, it took on a 'regional form': that of a fluted mace (*see* the position of flutes in the stoneworking style of the Catacomb culture)[14].

Against this background, it is surprising to see a clear domination of 'Baltic' maces (56 specimens in 2001, currently 64) over 'Pontic' ones (28 specimens in 2001, currently 33) in the total number of 97 specimens (Fig. 1). The domination is explained in two ways: as a result of historical differences in heritage protection strategies with respect to these lands already in the 'Age of Archaeology' – when our discipline was only being born in the 19th century – and in terms of the two centres of the 'invention' in question: original = 'Pontic' and secondary = 'Baltic'. The latter's growth in importance can be associated with the 2nd millennium BC.

In the 2nd millennium BC, the evidence of the use of fluted maces in funerary rites came from the communities of the Tumulus and Lusatian cultures. There has been – until recently – no archaeometric evidence of their presence in the TCC. With the increase in the number of sources, the issues of the 'Trzciniec development background' acquire special significance for mace use in Baltic-Pontic contexts (for more see Sect. 4).

b. What do the new 21st-century sources tell us?

Both new sets of fluted maces – 'Pontic' (five specimens) and 'Baltic' (eight specimens) – were obtained by conducting either field-walking surveys/excavations or museum queries (Figs 2 and 3; see Catalogue). The former set is for the most part a result of museum queries

7 Kośko/Klochko (eds) 2009; Ignaczak *et al.* (eds) 2011 and Kośko/Klochko (eds) 2013, 2014.
8 Klochko 2008.
9 Kośko/Potupczyk/Razumow (eds) 2014; Kośko (Ed.) 2015.
10 Makarowicz 2010; Makarowicz *et al.* 2013; 2016; 2017; 2018; 2019; Romaniszyn *et al.* 2021.
11 Kośko 2002a, Catalogue.
12 Klochko *et al.* 2015, 192f, fig. 9; Goslar *et al.* 2015, 283f.
13 Klochko 2002.
14 Sharafutdinova 1980.

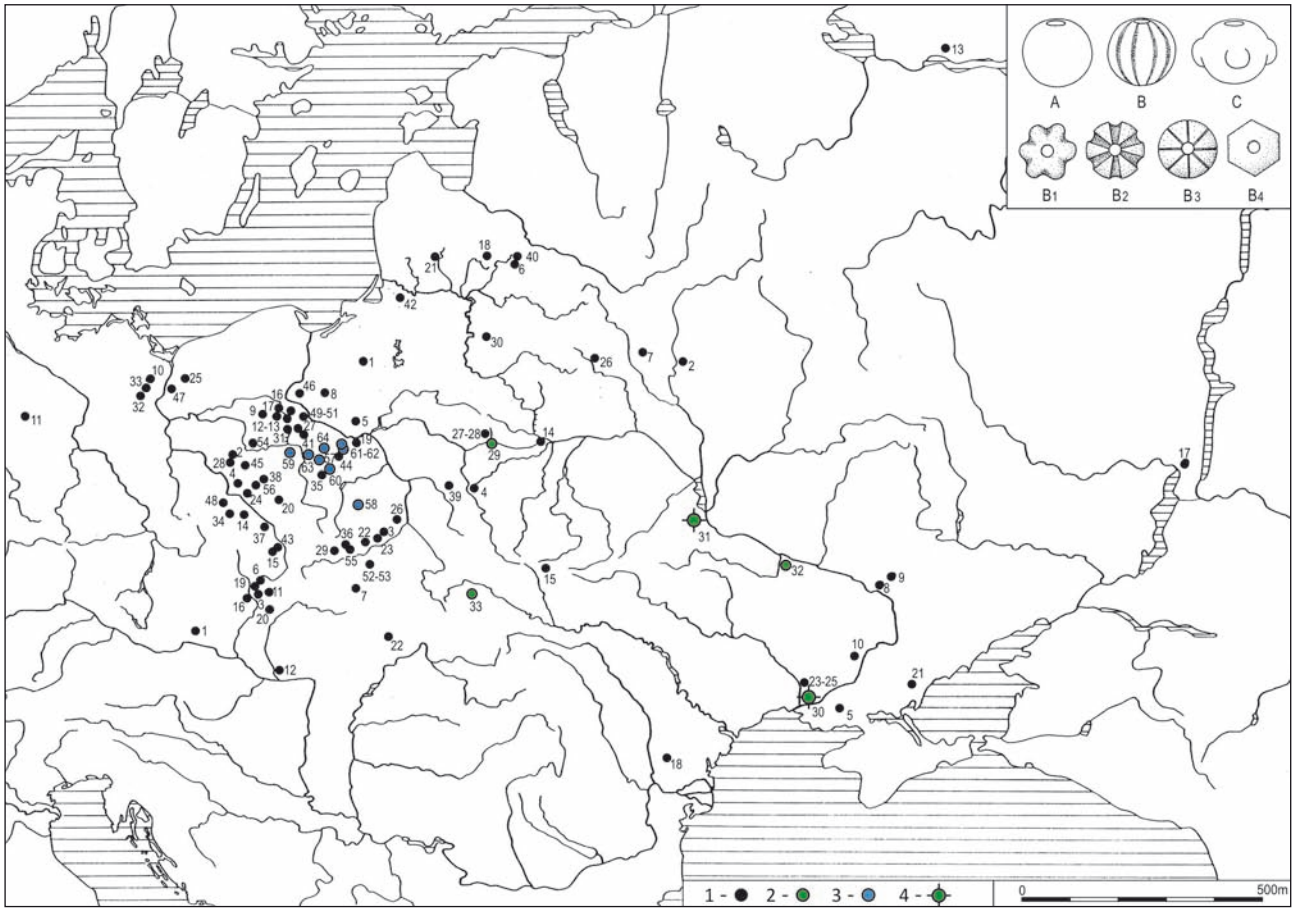

Fig. 1. Map of fluted mace (Type B) distribution. Colour marks specimens identified in 2002–2020 (1 – see Kośko 2002a; 2-4 – see Catalogue)

guided by the 2001-2002 publications cited earlier. This is reflected in the new information it brings. It lacks any new direct taxonomic-cultural identifications or – more precisely – Type B maces in assemblages. However, in the data on the location of the new sources, certain types of evidence are worth taking note of: territorial (α-β) and typological-stylistic (γ-δ). They may be important for developing the conception of identification and courses of intermarine routes.

Territorial evidence comprises locations of newly identified specimens of fluted maces set against the historically significant segments of the natural (hydrographical) communication network.

α. The first piece of evidence involves a Type B1 mace from Sofiyivka (Fig. 2: 4; Catalogue, P32) recorded where the Ros empties into the Dnieper (Fig. 1). As part of the Pontic intermarine routes, the Ros is sometimes considered a key connecting segment between the Middle Dnieper area and Podolia (Fig. 4: 3, 6). The fact that the route was actually used in the 3rd millennium BC may be ascertained by a barrow ceremonial centre linked to the Catacomb culture located at the Ros headwaters in Podolia, Pogralishchenskiy District[15].

β. The second piece of territorial evidence involves the find of a Type B1 mace in Vivnya (Fig. 2: 5; Catalogue, P33), situated in the upper Dniester basin, specifically in the drainage basin of the Stryi River (Fig. 1). This find is the first proof of the use of fluted maces in the cultural space of the Dniester drainage basin (Fig. 4: 1, 6). The proximity of the find to Western Opillya and the Przemyśl Gate is worth mentioning, as this is a historical transit passage coinciding with the physiographic boundary between the East and West of Europe (cf. the concept of the Bug-Dniester Limes)[16].

The typological-stylistic evidence is made up of distinctive special varieties of Types B1 and B2/B3-B3, which proves how important it is to focus on the regional cultural-chronological 'stylistic-semiotic varieties' of fluted maces.

15 Klochko/Kośko 2013, 18f., fig. 5.
16 For more on this see Makohonienko 2009; 2011.

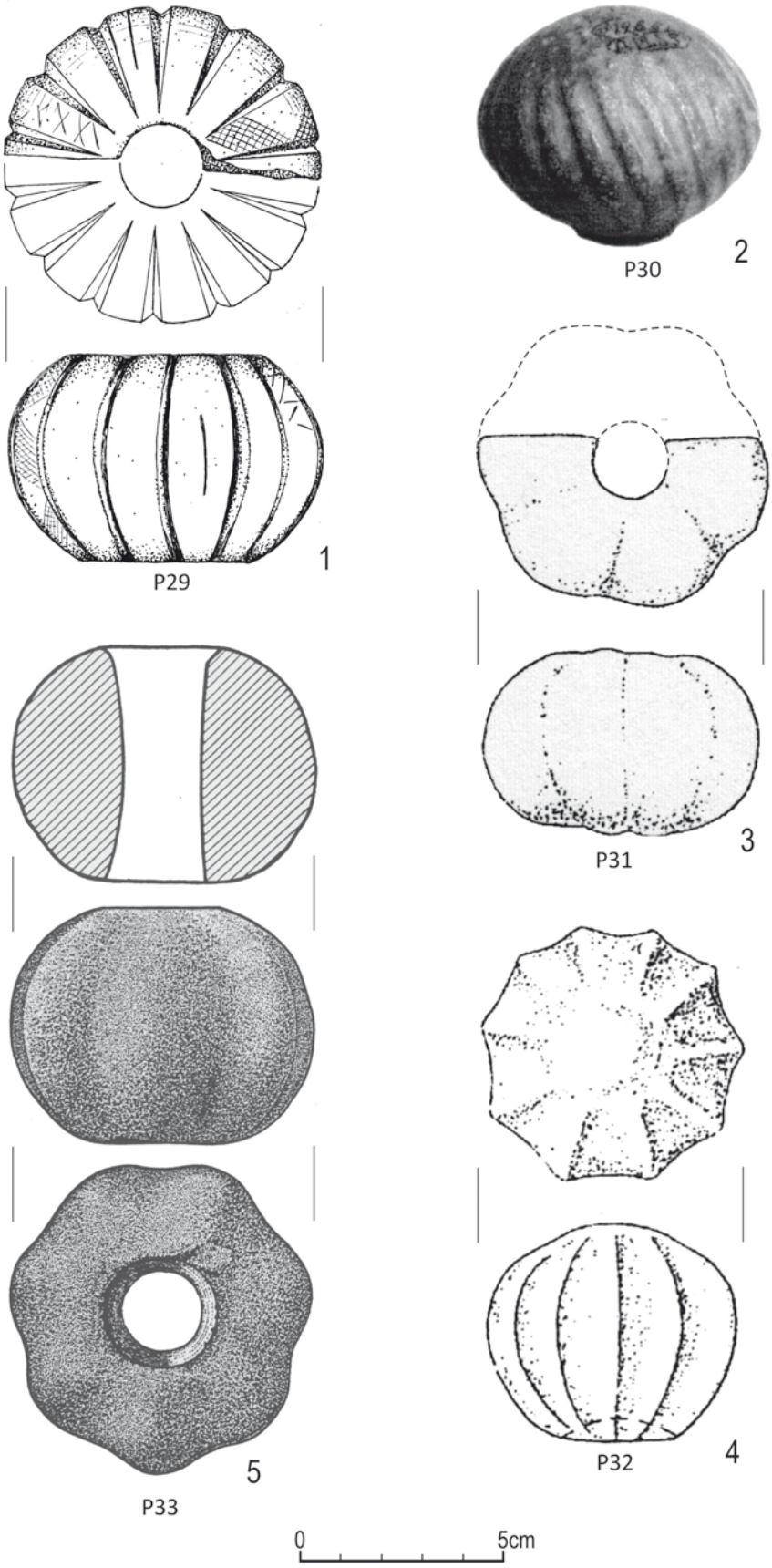

Fig. 2. Fluted maces from the Black Sea basin identified in 2002–2020 (reference symbols: see Catalogue)

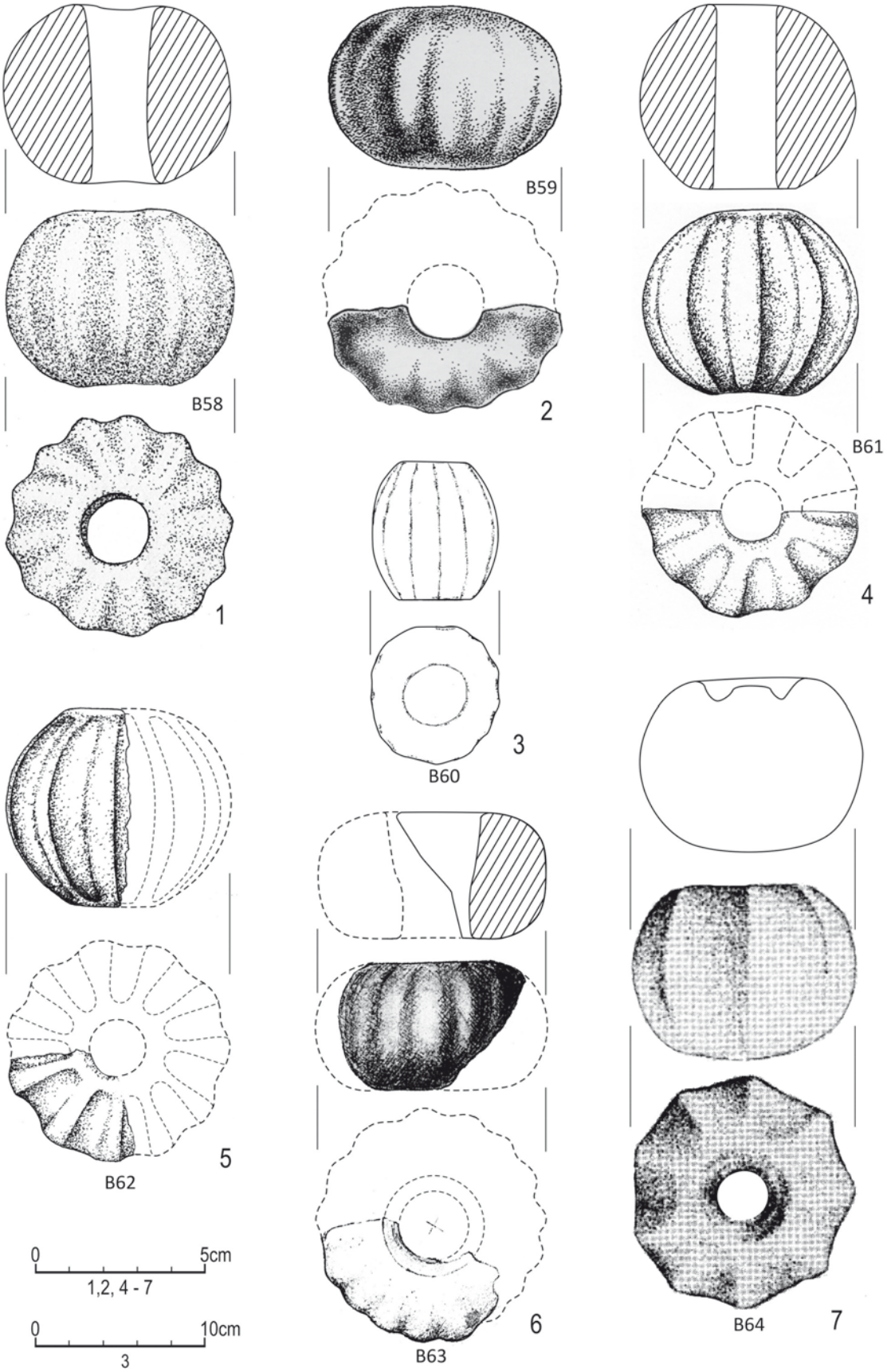

Fig. 3. Fluted maces from the Baltic Sea basin identified in 2002–2020 (reference symbols: see Catalogue)

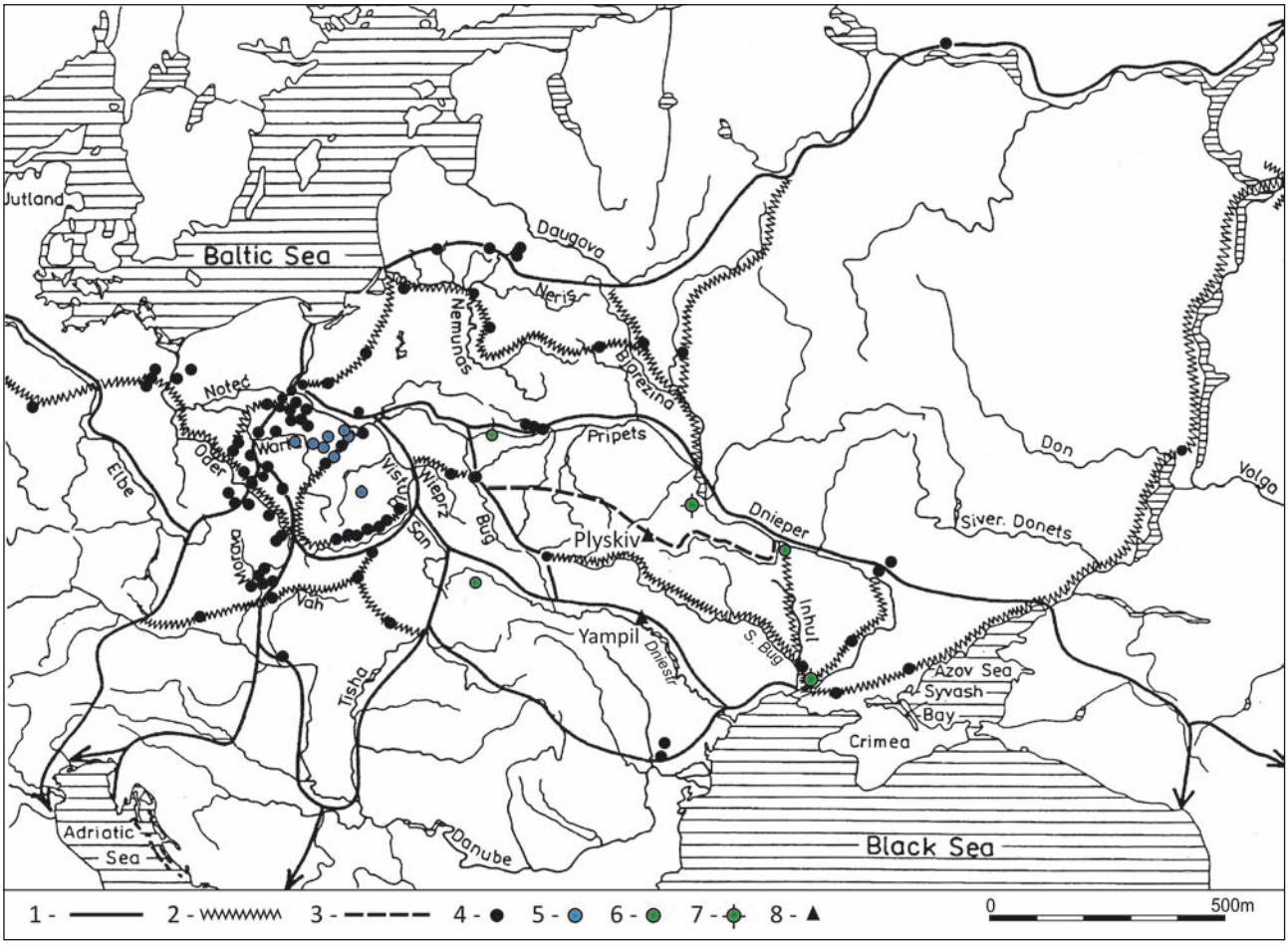

Fig. 4. Distribution of fluted maces of Type B as grounds for updating the map of intermarine routes: 2500–800 BC. 1 – Long-distance communication routes in the 2nd millennium BC acc. to M. Gimbutas (1965, fig. 15); 2 – routes charted after taking into account the distribution of fluted maces (Kośko 2002a; Kośko/Klochko 2009); 3 – a revision taking into account the studies of the Volhynian Globular Amphora Culture route (Łysenko/Szmyt 2011); 4-7 – finds of fluted maces (Fig. 1; see Catalogue, Annex 2); 8 – diagnostic features for the assessment of 'societies of the route' (see Klochko/Kośko 2013, fig. 5)

γ. The first comment concerns the stylistic formula, hitherto unknown, of a Type B1 mace characterised by diagonal flutes that was discovered probably in the vicinity of Kherson (Fig. 4: 2; Catalogue, Annex 2: P30). Its diagnostic traits include a pear-shaped profile often seen in Type A maces in the Pontic Area[17]. The isolated stylistic formula of the Type B1 mace may therefore be called the *Lower Dnieper Variety* (Fig. 5: 1).

δ. The second 'stylistic-semiotic variety' hypothetically comprises typologically late maces, Types B2/B3–B3. Their distinctive trait is an ornament that comes in segments and combines at least two motifs. The first instance of recording this stylistic variety is a Type B2/B3 specimen found in Pinsk on the Pripet River[18]. A close analogy to this variety is offered by a Type B3 mace discovered in Garadzec (Fig. 2: 1; Catalogue, 2: P29), a town situated at the source of the Pripet. Both specimens, documented in the cultural zone of western Polissya, probably from the late 2nd millennium BC[19], can be considered markers of the *Upper Pripet Variety* (Fig. 5: 2, 3).

The Baltic set of new specimens, in turn, is a result of predominantly conservation archaeology procedures: nationwide excavations held in places of planned infrastructure construction projects, chiefly motorways. Fluted maces were discovered mainly in central Poland (Fig. 3; Catalogue, B57, B59-B64). Only a single specimen was found between the Vistula and Pilica Rivers, in Chęciny upon the Nida, on the Małopolska Upland. In several cases, important observations were made of the

17 Klochko 2002; Sorokina 2005, 40f.
18 Kośko 2002a, 38, 75, fig. 4: 2.
19 Kryvalcevič 1997, 89–91.

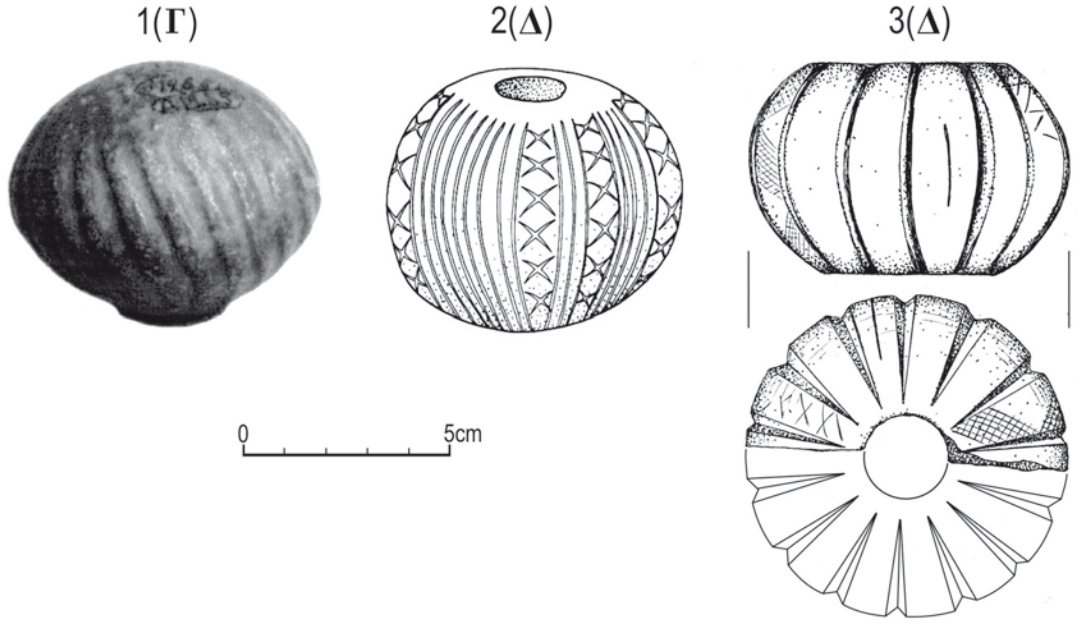

Fig. 5. The stylistic-semiotic variants of Type B: (Γ) lower Dnieper and (Δ) upper Pripet (reference symbols: see Catalogue and Kośko 2002a, Catalogue, Annex 1)

link between the mace finds and the settlements of the TCC (late horizon), and the beginnings of the Lusatian culture, rescue excavated in the Łódź province. It must be noted, however, that unambiguous discovery contexts of such maces are still lacking (for more on this issue see Section 4). Generally, these finds fit well into the mace distribution map, as we know it, with a significant concentration being found between the upper and middle courses of the Vistula and the Oder.

3. Intermarine routes and metal 'imports': drawing up of a list of diagnostic artefacts

The study of prehistoric and early historical intrusions followed by migrations and finally bringing about transformations encountered numerous obstacles in the borderland between the East and West of Europe until the 1990s. In the first half of the 20th century, they were mostly and originally of a political nature and prevented any academic cooperation on the archaeology of the Baltic--Pontic Area. This was also the case for route networks of immediate interest to us here, classically relying on the analyses of so-called imports (formally/functionally and topogenetically characteristic metal artefacts, chiefly identified as *massive/heavy metal objects*).

In those circumstances, a major achievement came – mentioned in the prologue – the studies by Marija Gimbutas on the *Bronze Age Cultures in Central and Eastern Europe* published in 1965. The book sums up what was then known on routes in Central and Eastern Europe[20], relying on the distribution of amber, fayence and metal artefacts, which were often accessible only through the literature.

The next stage of studies on transit routes in the Baltic-Pontic Area came with Polish-Ukrainian research projects on the bio-cultural borderland between the East and West of Europe, pursued after the political upheavals of 1989–1991. The projects covered – next to fluted maces (*see* Introduction) – the network of metal 'imports' discussed at length by Viktor I. Klochko[21]. The results were summed up at the Obrzycko Symposia in 2008 and 2013[22].

A prominent position among these projects is occupied by the study of the *Bug-Boh Trade Route as a Segment Connecting the Communities Living on the Baltic, Black and Mediterranean Seas in the 2nd Millennium BC*[23]. It was made possible by a broader research programme of preserving and processing metal artefacts retrieved by the 'movement of detector operators'. The project was developed and implemented by V.I. Klochko and A.V. Kozymenko[24].

20 Gimbutas 1965, 49, fig 15; continued by Sarnowska 1975, 26; fig 11; Kośko 2002a, fig. 22.
21 Klochko 1993; 2001; 2008; 2017; Klochko/Klochko 2013.
22 Kośko/Klochko (eds) 2009; 2013; 2014; Ignaczak *et al.* (eds) 2011.
23 Klochko 2007; 2008; 2011.
24 Klochko/Kozymenko 2011; 2017.
25 Klochko *et al.* 2020.

Table 1. Results of the spectral analysis (T. Yu. Goshko, Laboratory of the Institute of Archaeology, NAN Ukraine)

N	**1660**	**1661**	**1598**	**1805**	**1697**	**1895**	**1891**	**1836**	**1837**
AG	0.064	0.065	0.038	0.064	0.05	0.077	0.047	0.038	0.04
AL					1.171				
AS	0.589	0.512	0.408	0.134	0.971	0.552	0.237	1.96	1.649
BI									
CA	0.048	0.124	0.053	0.025	0.318	0.019		0.112	0.248
CL	0.552	1.638			0.475				
CO				>0.092	0.078		0.1	0.138	
CU	98.52	96.96	98.75	99.12	96.62	99.25	99.31	97.7	96.82
FE			0.066		0.21				1.187
NA									
NI	0.209			>0.097	0.035		0.105		
P		0.237	0.25	0.165					
PB			0.382	0.181		0.056	0.127		
S	0.019	0.09	0.016	0.057	0.073	0.013	0.024	0.033	0.06
SB		0.007	0.041	0.046			>0.025		
SI									
SN				>0.02		0.03	0.024	>0.017	

The oldest presentations of these sources focused on a late horizon: 2000–900 BC. The observations made then are currently being reanalysed as a separate research subprogramme[25].

This approach to the intermarine routes centres on the older period, covering the 3rd millennium BC. In the Pontic Area of the time, the chief civilisation-building force was Catacomb culture populations or – to take a broader view – the *Ingul-Donets Early Bronze Civilisation*[26].

Among 'Ingul-Donets' metal artefacts, the most diagnostic ones for any attempts to trace the oldest routes joining the basins of the Black and Baltic Seas are shaft-hole axes with fluted butts, associated with the Pontic Early and Middle Bronze Age (cf. the periodization of the Carpathian-Volhynia metallurgical centre)[27]. This artefact type shows a stylistic-manufacturing connection (in broader terms: they share a 'semiotic code') to both fluted maces and – more generally – the stoneworking style of the Catacomb culture[28].

When examining the new finds of metal shaft-hole axes from Ukraine, a number of artefacts were set aside. They differed from all the others in that they had parallel rolls or flutes on their butts. From the point of view of formal typology, such shaft-hole axes do not form a uniform group. Specifically, in the group of metal shaft-hole axes 'with flutes', the following four types can be distinguished:

Baniabic Type (Fig. 6). Shaft-hole axes from the Chapaievka hoard, Zolotonosha Raion, Cherkasy Oblast (Fig. 6: 1; Table 1, no. 1660)[29]; a shaft-hole axe in a casting mould from a burial dated to the early stage of the Catacomb culture, Krasnovka site 36.20, Crimea (Fig. 6: 2)[30]; and shaft-hole axes from Chernikihiv Oblast (Fig. 6: 3; Table 1, no. 1661)[31] and Munina, Jarosław commune, eastern Poland (Fig. 6: 4)[32] are variants of shaft-hole axes from the early stage of the Yamnaya culture, Baniabic type, characterised by a casting technique involving a two-piece mould with an open side[33]. The shaft-hole axes from the Chapaievka hoard and Chernikihiv Oblast were made of arsenical bronze.

Khrystynivka Type (Fig. 7). As a separate type, shaft-hole axes belonging to a hoard found close to the hamlet of Khrystynivka, Cherkasy Oblast were distinguished. The hoard comprised two temple pendants – one of gold, the other of silver – a Staroe-Bykovo-Snezhnoe-Type adze from the Early Bronze Age (middle of the 3rd millen-

26 Klochko/Kośko 2013; Otroshchenko 2013.
27 Klochko/Kośko 2020.
28 Sharafutdinova 1980; Bratchenko/Shaposhnikova 1985, 415f.
29 Klochko/Kozymenko 2017, No. 1, 3, 4.
30 Klochko 2006, fig. 34: 2.
31 Klochko/Kozymenko 2017, No. 1, 3, 6.
32 Kostrzewski 1964, fig. 53; Klochko 2001, fig. 53: 3; Klochko 2006, fig. 50: 3.
33 Klochko 2019.

Fig. 6. Baniabic Type shaft-hole axes. 1 – Chapaievka hoard; 2 – Casting mould from Catacomb Grave culture grave, Krasnovka 36.20, Crimea; 3 – Chernikihiv Oblast; 4 – Munina, Jarosław Commune

Fig. 7. Khrystynivka Type shaft-hole axes. 1 – Khrystynivka hoard; 2 – Vinnytsia Oblast; 3 – Cherkasy; 4 – Vinnytsia Oblast; 5 – Bilousivka; 6 – Smolyhiv; 7 – Onatsky; 8 – Nikopol; 9 – Borodianka

Fig. 8. Kolontayiv-Corbasca Type shaft-hole axes. 1 – Chernikhiv Oblast; 2 – Dnipropetrovsk Oblast; 3 – Lubny; 4 – Novoazovsk Raion, Donetsk Oblast; 5 – Mykhailivka; 6 – Chernikhiv; 7 – Tarasivka; 8 – Rivne

Fig. 9. Lelişeni-Szczytna Type shaft-hole axes. 1 – Lelişeni, Romania; 2 – Tulchyn; 3 – Kamianets-Podilskyi; 4 – Sasiv; 5 – Lypovets; 6 – Crimea; 7 – Assemblage from Crimea; 8 – Khmelnytskyi Oblast; 9 – Assemblage from Sanzhary Raion

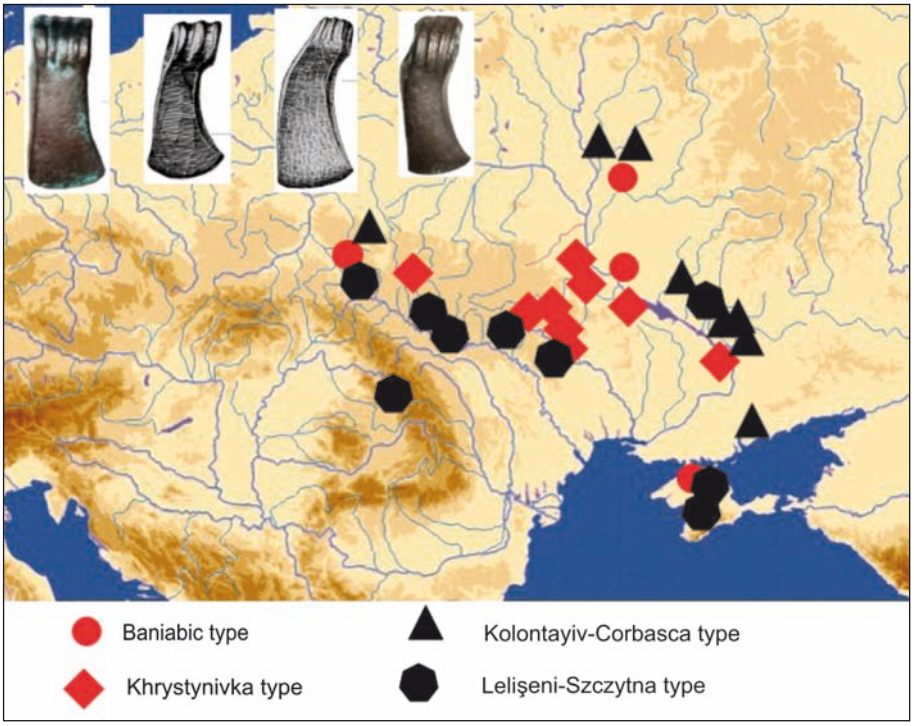

Fig. 10. Distribution of fluted-butt shaft-hole axes in Ukraine

nium BC), and three shaft-hole axes with fluted butts (Fig. 7: 1[34]). Only two found their way to A.V. Kozymenko's collection, and they were subjected to a spectral analysis (Table 1, nos 1598, 1805)[35].

To this type, the following finds were assigned: from Vinnytsia Oblast (Fig. 7: 2); Cherkasy (Fig. 7: 3); Vinnytsia Oblast (Fig. 7: 4)[36]; Bilousivka, Tulchyn Raion, Vinnytsia Oblast – a find from 1887 (Fig. 7: 5)[37]; Smolyhiv, Lutsk Raion, on the shore of Lake Okorske (Fig. 7: 6)[38]; Onatsky, Kaharlyk Raion, Kyiv Oblast, (Fig. 7: 7)[39]; Nikipol, Dnipropetrovsk Oblast (Fig. 7: 8)[40]; and Borodianka, Kyiv Oblast (Fig. 7: 9; Table 1, no. 1697[41]). On the strength of the fact that they were cast in a casting mould with an open 'side', characteristic of the shaft-hole axes of the early stage of the Yamnaya culture[42], they can be included in the local group of the late stage of the Yamnaya culture in eastern Podolia. Among these shaft-hole axes are specimens made of pure copper and arsenical bronze.

Kolontayiv-Corbasca Type (Fig. 8). Specimens from the following locations were considered variants of Kolontayiv-Corbasca shaft-hole axes of the Catacomb culture[43]: Chernikhiv Oblast (Fig. 8: 1); Dnipropetrovsk Oblast (Fig. 8: 2); Lubny (Fig. 8: 3)[44]; Novoazovsk Raion, Donetsk Oblast (Fig. 8: 4)[45]; Mykhailivka, Dnipropetrovsk Oblast (Fig. 8: 5)[46]; Chernikhiv (Fig. 8: 6)[47]; Tarasivka, Dnipropetrovsk Oblast (Fig. 8: 7)[48]; and Rivne (Fig. 8: 8)[49]. They are characterised by a casting technique using a closed mould with a special opening – a sprue-cup.

Lelişeni-Szczytna Type (Fig. 9). Variants of the Lelişeni-Szczytna shaft-hole axes of the Corded Ware culture[50], considered specimens cast in a stone mould, were found in Lelişeni, Romania (Fig. 9: 1)[51]; Tulchyn, Vinnytsia Oblast, (Fig. 9: 2)[52]; Kamianets-Podilskyi, Khmelnytskyi Oblast (Fig. 9: 3; Table 1, no. 1895)[53]; Sasiv,

34 Violiti, access 13.06.2015.
35 Collection of A.V. Kozymenko, 2018 acquisitions.
36 Violiti, access respectively: 14.09.2019, 25.06.2018, and 03.10.2018.
37 Bronozvyi vek… 2013, no. 13/1.
38 Klochko 2001, fig. 53: 7; Klochko 2006, fig. 50: 7.
39 Klochko 2001, fig. 57: 7; Klochko 2006, fig. 54: 7.
40 Klochko 2001, fig. 53: 3; Klochko 2006, fig. 39: 8.
41 Klochko/Kozymenko 2017, No. 1, 3, 7.
42 Klochko 2019.
43 Klochko *et al.* 2020.
44 Violiti, access respectively 19.02.2017, 20.02.2019, and 18.04.2019.
45 Klochko 2001, fig. 57: 3; Klochko 2006, fig. 34: 3.
46 Klochko 2001, fig. 58: 7; Klochko 2006, fig. 35: 7.
47 Violiti, access 17.03.2017.
48 Klochko 2001, fig. 59: 5; Klochko, 2006, fig. 36: 5.
49 Violiti, access 14.09.2018.
50 Klochko *et al.* 2020.
51 Roman/Dodd-Oprițescu/Janos 1992.
52 Violiti, access 08.02.2019.
53 Collection of A.V. Kozymenko, 2018 acquisitions.

Zolochiv Raion, Lviv Oblast (Fig. 9: 4)[54]; Lypovets, Vinnytsia Oblast (Fig. 9: 5; Table 1, no. 1891)[55]; Crimea (Fig. 9: 6); a Crimea assemblage (Fig. 9: 7); Khmelnytskyi Oblast (Fig. 9: 8)[56]; and an assemblage from the Sanzhary Raion, Poltava Oblast (Fig. 9: 9; Table 1, nos 1836, 1837)[57]. These shaft-hole axes are characterised by the technique of casting into a 'closed' mould with an open 'butt'; most are made of arsenical bronze.

The custom of reinforcing (ornamenting) the butts of metal shaft-hole axes with raised flutes that also served as ornaments in the Bronze Age in Ukraine must have been borrowed from Asia Minor, where flutes were universally used on shaft-hole axes with an eye in the Early, Middle and Late Bronze Age.

The ornamentation of shaft-hole axe butts with flutes in Ukraine in the Bronze Age may be considered a marker of cultural contacts with Asia Minor[58] (Fig. 10). This claim has recently received strong support from the latest aDNA tests of barrow culture communities settling the forest-steppe on the middle Dniester (Yampil Raion). There, in a set of two Catacomb culture burials, situated in the mounds of an Eneolithic barrow (Prydnistryanske, site 1, I/4: 2669-2419 BC)[59], identification was made of currently unique mitochondrial haplogroup X4 with distinctive topogenetic references to Anatolia and Armenia[60].

Since only a few shaft-hole axes were ornamented with flutes, it can be presumed that this custom was used only in respect of the weapons of elite warriors.

4. The taxonomic-cultural background of communities settling the bio-cultural borderland between the East and West of Europe in the 3rd and 2nd millennia BC

The inception of the *Crimea-Jutland route*, mentioned in the title, can now be associated with two taxonomic-cultural horizons in the Baltic-Pontic Area. The first and older should be linked to the communities of the Catacomb and Corded Ware cultures from the second half of the 3rd millennium BC, while the other and younger, from the 2nd millennium BC, must be identified now with the TCC and the Tumulus and early Lusatian cultures. There is much to support that the older horizon embodies mobile adaptation strategies (the age of barrow cultures[61]), among them the intrusions of 'Pontic' communities into 'Baltic inter-regional interactions'[62], which could have initiated the *Crimea-Jutland route* as well.

A clearer picture of the intermarine routes, in terms of both stone markers (maces) and metal insignia forms ('imports'), is observable in the 2nd millennium BC, i.e. the younger horizon. A map of fluted-mace distribution (Fig. 1) suggests that in the 2nd millennium BC, it can be associated, apart from steppe milieus, with the oecumene of the three cultural groups mentioned above: the TCC, the Tumulus culture (Vorlausitzer culture) and the early Lusatian culture[63] in today's Poland. This is particularly true of a certain variety, namely, melon-shaped Type B1 specimens (with broad flutes and without protrusions at shaft holes) that appeared between the Oder and the Vistula in the second half of the 2nd millennium BC. Perhaps it was from there that this variety spread east and northwest.

Between the Oder and the Dnieper, several concentrations of the variety are observable on the Silesia Lowland, the western Wielkopolska Lowland, the Małopolska, Sandomierz and Lublin Uplands, and in Kujawy and the Bzura River drainage basin. Smaller clusters of this mace variety and its single finds are found further east: in Pripet Pollissya, on the lower Dnieper and Boh rivers, in the upper Dnieper drainage basin, and between the Neman and Dvina (Daugava) Rivers (Fig. 1). Most were documented within the 'Trzciniec' oecumene, in major settlement centres[64]. Only rarely were they found between them, along routes.

Their connections to the activity of the communities under discussion are proven by the contexts of their discovery. Most of the specimens were found exclusively in late Trzciniec inventories, at the stage of the TCC in which traits of a new cultural formation are already visible – the circle of Tumulus cultures[65]. It is worth stressing, however, that no maces have been recorded in the TCC eastern province so far. A tentative claim can be made that maces were a *sui generis* symbol of membership in military elites among the populations of the second half of the 2nd millennium BC (identifiers of authority in specific lineages?) and objects of exchange along long-distance and regional/local routes active at that time[66].

54 Klochko, Kozymenko 2017, No. 2, 3, 9.
55 See 52.
56 Violiti, access respectively 12.04.2019, 7.05.2013, and 13.11.2018.
57 See 52.
58 Klochko 2007.
59 Klochko *et al.* 2015, 192, 193, fig. 9.
60 Juras *et al.* 2018, 7.
61 Gimbutas 1977; 1980.
62 Włodarczak 2014; Kośko 2014; Kośko/Włodarczak 2018.
63 Berounska1987; Gedl 1996; Kośko 2001; 2002a; Makarowicz 2009; 2010.
64 Makarowicz 2010, 349–352; fig. 6.12.
65 Makarowicz 2017.
66 Kośko 2001; 2002a; Górski/Makarowicz 2007; Makarowicz 2009; 2010.

The absence of any unambiguous contexts of their discoveries makes more accurate dating of the younger horizon of fluted mace use difficult. Nevertheless, relying on a few better-explored cultural-chronological sequences of some sites (e.g. Polesie, site 1, in the Bzura drainage basin[67]), one can connect the revival of mace (active) use with the period 1400–1200/1100 BC. This dating coincides with the rise of 'the style of fluted ornaments' sometimes observable in funerary contexts in the pottery and stone goods of the Tumulus culture[68].

The absence of any fluted-mace finds dated to a period of at least several hundred years, from the end of the 3rd to the middle of the 2nd millennia BC calls for some, if only tentative, interpretation. The only hypothetical exception is an object from Wietrzychowice, site 1, Kujawy, (B41) linked to Phase IIIa? of the Iwno culture, recorded in the mound of a Neolithic megalith[69]. It must be admitted that the current state of research does not permit a plausible explanation of this alleged hiatus.

Certain indirect evidence of the continuation of 'the Catacomb style of fluted ornamentation' is offered by the finds of objects so ornamented in later periods, for example, a mortar-shaped hammerstone from Karabelivka, Ukraine, associated with the Babino culture,[70] or a fluted shaft-hole axe from Sędzin, Kujawy, linked in turn to Early Bronze cultures in Poland (personal communication from Janusz Czebreszuk). Both objects may prove that the stylistic tradition in question was continued in the first half of the 2nd millennium BC. The presence of the Babino tradition and its impact on the TCC are well documented[71]. Interestingly enough, it has been suggested recently that the impact could have been even earlier[72].

Thus, it can be tentatively assumed that the revival of mace use was the consequence of a successive transmission of steppe patterns, accompanying the infiltration/expansion by the people who built barrows. It is worth stressing that the very reappearance of maces in the life of the communities of Central and Eastern Europe was not an exception. The first such episode took place in the Neolithic-Eneolithic (Mariupol – Borodino), thus marking their reuse in the 'barrow cultures' (from the prologue of the Bronze Age, the 'first revival')[73]. Another example of the revival of mace use comes from modern times when – in the age of the Polish and Ruthenian nobility's search for their 'Sarmatian roots' in the First Republic (especially in the 17th century) – maces and ceremonial battleaxes became the insignia of the authority of hetmans and military commanders of lower ranks.

67 Górski *et al.* 2011.
68 Gedl 1975,; 1996.
69 Kośko 2002a, 58, fig. 17: 79.
70 Berezanskaya *et al.* 1986, 20, fig. 6: 19.
71 Makarowicz *et al.* 2013, 162–202.
72 Włodarczak 2014.
73 Klochko 2002a, 22.

Conclusions

Although new archaeometric information in the form of over a dozen new fluted mace specimens from both the Baltic and Pontic zones, as well as fluted metal shaft-hole axes, has not radically changed the picture of the topogenesis, cultural affiliation, chronology, principal transmission routes and socio-cultural significance of the idea of the mace, it has, nevertheless, borne out some earlier hypotheses, set new research directions, and opened up new vistas. The most important conclusions from the above analyses are set out below.

1. At present, two chronological horizons of mace use in the Baltic-Pontic Area are observable: an earlier one (Pontic) coinciding with 2500–2000? BC and a later one (Baltic) falling in 1400–800? BC.

2. The first ^{14}C determination (AMS) was obtained for a Type A mace from the Pontic zone (Prydnistryanske, Yampil Region, Barrow I, Grave I/4, sunk into a barrow), linked to the Catacomb culture, which is also borne out by fossil DNA tests.

3. The Pontic topogenesis of fluted maces (Type B) is indirectly confirmed by other artefacts from the second half of the 3rd millennium BC: metal shaft-hole axes and hammerstones whose morphology is characterised by broad flutes on their butts ('fluted style').

4. There are still no early indisputable radiocarbon age determinations available for Type B and Type C maces from the Pontic zone, but their connection to the Catacomb culture (in particular of Type B) is the most probable.

5. In the Baltic zone, the thus far explored discovery contexts of stylistically dominating mace forms (Type B) suggest that they ought to be dated to 1400–800 BC. New finds support this chronology and their connection to the late TCC groups, the Tumulus culture, and the beginnings of the Lusatian culture. The new finds narrow down the chronology to 1400–1200/1100 BC.

6. The observable revival of the use of maces in the second half of the 2nd millennium BC may be synchronised with the emergence of the 'fluted style' among the communities in question and its application to pottery, stoneworking and metallurgy.

7. The revival of mace use was most likely prompted by the arrival of this custom from the east with the successive wave of so-called barrow cultures. However, there is no

credible source evidence for tracing a potential link, especially in the first half of the 2nd millennium BC.

8. The interpretation of the function and meaning of the mace in terms of symbols and insignia or prestige and pomp still seems the most credible.

9. Single instances of clear funerary contexts of mace discoveries can be interpreted in the sociological terms of a power discourse. A mace could have been a transitive insignia tied to the function, and upon its bearer's death it passed to his successor; only rarely was it deposited as a grave offering to its deceased bearer.

Finally, we believe that these studies will be continued, and that more maces will be identified and analysed in terms of taxonomy and chronology as well as chronometry, genetics and function. In particular, it is hoped that the research field will be broadened to cover Type A and Type C maces, which are associated, as far as their topogenesis goes, with the Pontic centre as well.

Catalogue

The first version of the Catalogue (79 specimens) – was closed at the beginning of 2001. Parallelly the verification analysis of sites and zones has been conducted. As a result, in late 2001 Annex 1 was introduced (P – Pontic, B – Baltic zones), in which 84 specimens were placed[74].

Legend[75]: **a** – site, find classification; **b** – mace type; **c** – hole type (no hole; marked only; partial; full); **d** – flute number; **e** – mace dimensions: diameter × height × hole diameter in mm; **f** – raw material; **g** – environmental and funcional context (settlement?; cemetery?; grave/grave? and state of preservation (100%, ca. 50%); **h** – cultural context, chronology; **i** – principal source of information (collections, oral/written communications).

Pontic zone

P29. a – Garadzec, Belarus, Brest Region, Kobryn District; b – B3; c – full; d – 14?; e – 77×51×20; f – ?; g – ?, 50%; h – ?; i – ?[76].

P30. a – Kherson, Ukraine, Kherson Region, ? District; b – B2? (diagonal flutes); c – ?; d – ?; e – ?; f – ?; g – ?; h – ?; i[77].

P31. a – Kyiv, Ukraine, ? Region, ? District; b – B1; c – full; d – 7/8; e – 65×41×17; f – ?; g – ?, 50%; h – ?; i[78].

P32. a – Sofiyivka, Ukraine, Cherkasy Region, ? District; b – B1; c – marked only; d – 10; e – 60×49×25? (traces of drilling); f – ? ("light green colour"); g – ?, 100%; h – ?; i[79].

P33. a – Vivnya, Ukraine, Lviv Region, Stryi District; b – B1; c – full (double-sided drill); d – 7; e – 74×57×26×24; f – ?; g – ?; h – ?; i[80].

Baltic zone

B57. a – Biała, site ?, Poland, Łódź Region, ? District; b – ?; c – ?; d – ?; e – ?; f – ?; g – cemetery? (field-walking prospection), ?; h – Lusatian culture, III Period of Bronze Age; i[81].

B58. a – Chęciny, site 28, Poland, Świętokrzyskie Region, Kielce District; b – B1; c – full; d – 13; e – 64/67×51×24-21; f – sandstone; g – ?, 100%; h – ?; i[82].

B59. a – Goszczanowo, site? ("from surface of the sand field", building plot no. 477), Wielkopolskie Region, Turek District; b – B1; c – full; d – 14?; e – 70×47×22?; f – ? ("green speckled surface"); g – ?, 50%; h – ?; i[83].

B60. a – Łódź, site 410, Poland, Łódź Region, Łódź District; b – B1; c – full; d – 11 ?; e – 74×80×38?; f – ?; g – settlement, 100%; h – Trzciniec Cultural Circle; i[84].

B61. a – Polesie, site 1, Poland, Łódzkie Region, Łyszkowice District; b – B1/B2; c – full; d – 8?; e – 65×58×20-17; f – quartzite sandstone; g – settlement, 50%; h – Trzciniec Cultural Circle; i[85].

B62. a – Polesie, site 1, Poland, Łódź Region, Łyszkowice District ; b – B1/B2; c – full; d – 11?; e – 65×57×16.5?; f – quartzite sandstone; g – settlement, 50%; h – Trzciniec Cultural Circle; i[86].

B63. a – Powodów II, site 23, Poland, Łódzkie Region, Poddębice District; b – B1; c – full ("double-sided drilling"); d – 29 + 20?; e – 68/70×38×20-19; f – gabbro; g – settlement; h – Trzciniec Cultural Circle?; i[87].

B64. a – Rogaszyn, sites 2-4, Poland, Łódzkie Region, Piątek District; b – B1; c – marked only; d – 9; e – 63/64×50×26/27; f – ?; g – ?, 100%; h – ? ; i[88].

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74 Kośko 2002a, 74–81.
75 See also: Kośko 2002a.
76 Courtesy of M.N. Kryvaltsevich.
77 Collection of Museum in Kherson (pers. comm. Viktor I. Klochko – no close localization, only photo documentation).
78 Sorokina 2005, 36–44, fig. 3: 7.
79 Sorokina 2005, 36–44, fig. 3: 4.
80 Bandrivskiy, Konoplya 2006, 211, fig. 1.
81 Muzolf 2004, 82.
82 Chwałek 2011, 77–87.
83 Pudełko 2009, 213–215
84 Błaszczyk/Lewandowski/Zawilski 2010, fig. 9: 4.
85 Szydłowski 2011, 292–295, fig. 7: A.
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87 Makarowicz 2006.
88 Muzolf 2004, 82f., fig. 2: 1.

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