

Barbed points and harpoons from Chalcolithic sites (ca. 4500–4350 BC) in Upper Thrace and the Western Black Sea coast in Bulgaria

Pointes barbelées et harpons provenant de sites chalcolithiques (vers 4500-4350 av. J.-C.) de Thrace du Nord et de la côte occidentale de la mer Noire en Bulgarie

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Abstract: The use of barbed points and harpoons made of red deer antler is having a punctuated distribution and frequency during the later prehistory of Southeastern Europe. Following the introduction of the farming economy in the late seventh–early sixth millennium BC, their use underwent a significant decline for approximately 1000 years, re-emerging briefly during the Late Chalcolithic (4600–4200 BC) with a notable concentration along the Lower Danube and its tributaries. The rediscovery of various types of slender harpoons and barbed points from the interior of Upper Thrace, as featured in the collections of the museums of Plovdiv and Pazardzhik, prompted a revision of the state of research on the topic by introducing previously unpublished finds from the tell settlements near Yunatsite, Dolnoslav, Skutare and Kozareva Mogila in detail and in context. A comparative analysis of their distribution patterns reveals that certain types are more prevalent across the northeastern part of the Balkans, while others are confined to specific micro-regions and even individual sites. The aim of this paper is to place them in their cultural, spatial and chronological context, to enhance our understanding of the evolution of social practices and cultural exchanges in this region during this defining period of European prehistory.

Keywords: Upper Thrace, Late Chalcolithic, antler, harpoon, barbed point, bone industry.

Résumé : Les pointes barbelées et les harpons en bois de cerf ont eu une distribution retreinte et une faible fréquence au cours de la préhistoire tardive de l'Europe du Sud-Est. Avec l'introduction de l'économie agricole à la fin du VII^e et au début du VI^e millénaire av. BC, ces objets ont, en effet, connu un déclin significatif pendant environ mille ans, réapparaissant brièvement pendant le Chalcolithique récent (4500-4350 BC) avec une présence notable le long du Danube inférieur et de ses affluents. La redécouverte de divers types de harpons élancés et de pointes barbelées provenant de l'intérieur de la Thrace du Nord, tels qu'ils figurent dans les collections des musées de Plovdiv et de Pazardzhik, nous a incités à revoir l'état de la recherche sur ce sujet et à les publier en détail dans leur contexte de découvert dans les sites près de Yunatsite, Dolnoslav, Skutare et Kozareva Mogila. Une analyse comparative de leur répartition révèle que certains types sont plus répandus dans de vastes régions des Balkans orientaux, tandis que d'autres sont confinés à des micro-régions spécifiques, voire à certains sites. L'objectif de cet article est de replacer ces objets dans leur contexte spatial, chronologique et culturel afin d'améliorer notre compréhension de l'évolution des pratiques sociales et des échanges culturels dans la région au cours de cette période déterminante de l'histoire de l'humanité que constitue le Chalcolithique.

Mots-clés : Thrace du Nord, Chalcolithique récent, bois de cervidé, harpon, pointe barbelée, industrie osseuse.

INTRODUCTION

Two recent reviews listed over 260 barbed points and harpoons discovered in 17 sites from the area of Kodzhadermen-Gumelnita-Karanovo VI (further KGK VI) culture in Bulgaria and Romania (Markov, 2020; Mărgărit, 2023). These devices are exclusively made of deer antler and even though they somewhat resemble the Upper Magdalenian harpoons from Western Europe (Julien, 1982; Langley, 2014), most of the south-eastern European examples are considerably heavier and date to the third quarter of the fifth millennium BC. These specialized fisher's projectiles were found broken and discarded on tell settlements of sedentary farmers with advanced animal husbandry, developed pyro technologies and metallurgical skills raising the question of whether their short-lived popularity was actually the result of local development, or they were brought and used by foreigners. In an attempt to provide an answer to this question, we will apply the typological method to analyse the spatial and temporal distribution of published and previously unpublished finds to highlight their regional specifics and possible origin.

Most of the published barbed points in the Eastern Balkans were found in Romania and have been reviewed earlier by E. Comşa (Comşa, 1986). The latest review by M. Mărgărit, reveals that there are several peaks in their use across Romania ranging from the Upper Palaeolithic in the Eastern Gravettian site at Cotu MiculiŃi, past the Mesolithic period at Climente II Cave and at Cuina Turcului Rockshelter. These are followed by single objects from the Early Neolithic period at Schela Cladovei and Măgura-Buduiasca, as well as from the Late Neolithic period when we see them in contemporary Vinča culture sites such as Ostrovul Corbului, Parţa and Liubcova, as well as in culturally distinct neighbouring communities at Vădastra itself, at Isaccea-Suhat in the area of Boian culture, and at Traian-Dealul Viei from the Precucuteni area. Even though the list could suggest deep ancestry, these sites are spread far and wide in space and time. The situation changes at once in the second half of fifth millennium BC when 10 KGK VI sites suddenly produced 168 specimens even if Pietrele and Căscioarele alone provided ca. two-thirds of the total amount (Mărgărit, 2023, pp. 160–162, fig. 1 and the references therein). According to Mărgărit the barbed points from Romania would be described as flat rod-shaped elongated pieces with plan-convex cross-section measuring between 120 and 190 mm and having two and rarely one rows of barbs (Mărgărit, 2023, p. 163). Their barbs would have either convex, straight or sharp (curved) shape, the latter having concave proximal edge away from the shaft. The base would taper to a blunt massive point and may be furnished with lateral protuberances with trapezoidal or triangular morphology (fig. 1, Nos. 10 and 11). The hafting rarely may, but most often may not, include round perforations or deep and wide grooves on two thirds of the circumference. Detailed observations of unfinished pieces revealed

that with few exceptions most Romanian barbed points were made from red deer antler through bipartition followed by surface regularization, cutting out of the point, the barbs and protuberances, and finishing.

Slightly earlier, Dragomir Markov reviewed most published barbed points from Bulgaria and listed altogether 95 pieces from seven sites including finds from the tell sites Ruse, Sultan (Nevski in Popovo), Hotnitsa, Durankulak, Golyamo Delchevo and Bikovo, including documentation of some previously unpublished specimens from tell Ruse (Markov, 2020). Independently, he reached very similar conclusions about the selection of raw materials, manufacture techniques and the resulting shapes. Moreover, Markov suggested an original typology distinguishing between three types of barbed points, i.e. (A) unilateral, (B) bilateral asymmetric, and (C) bilateral symmetric and these would be morphologically subdivided into three subtypes according to the portion of barbs in relation to the width of the barbed zone (Markov, 2020, pp. 14–18): subtype 1 – with closed barbs (<33%), subtype 2 – with equable open barbs (between 33 and 50%), and subtype 3 with open barbs (over 50%). Markov concludes that with 58% his type B is by far the most popular followed by type C and just two examples of unilateral pieces matching his type A. Upon careful inspection, he recognized a bi-modal regional variation in the distribution of the observed typological features and outlined two groups of finds—a Northern group of massive points with four to six large open barbs spread away from the shaft including most finds from Ruse, Durankulak (fig. 1, No. 10) and Sultan, while the Southern group of barbed points known from Hotnitsa, Golyamo Delchevo (fig. 1, No. 9) and Bikovo (fig. 1, Nos. 4 to 7) is distinguished by slender proportions and larger number of narrow barbs situated closer to the shaft. This group includes the only two previously known pieces with perforated bases from Bikovo (fig. 1, No. 5) and Hotnitsa. Considering the prevailing environmental conditions at each site, Markov explains this spatial separation in functional terms—the robust detachable harpoon heads of the Northern group were likely suitable for targeting larger fish and aquatic mammals (seals and dolphins) thriving in the Danube and the Black Sea, whereas the slender Southern objects could have been used as barbed spears and leisters for fishing smaller catch in minor rivers and marshes (Markov, 2020, pp. 21–25).

1. THE BARBED POINTS FROM UPPER THRACE AND THE WESTERN BLACK SEA COAST

Even though the settlement patterns and the development of ceramic technologies suggest a process of integration of the communities inhabiting the eastern part of the Balkan Peninsula throughout much of the fifth millennium BC, certain innovations or adaptations did not seem to gain comparable popularity throughout the whole



Fig. 1 – Barbed points from Upper Thrace (Nos. 1 to 8) and the western Black Sea coast (Nos. 9 to 16) of Bulgaria (P. Zidarov).

Detailed descriptions in table 1.

Fig. 1 – Pointes barbelées de Thrace du Nord (n° 1 à 8) et de la côte occidentale de la mer Noire (n° 9 à 16) en Bulgarie (P. Zidarov).

Descriptions détaillées dans le tableau 1.

region. The single published findspot with barbed points near Bikovo seemed like a good example for their possible rejection in the southern part of the KGK VI area but the discovery of some unpublished specimens over the entire breadth of Upper Thrace offers new insights. Figure 1 illustrates all known Chalcolithic finds from the area of Upper Thrace (fig. 1, Nos. 1 to 8) and the western Black Sea region (fig. 1, Nos. 9 to 13) as a frame of reference for the finds from Kozareva Mogila (fig. 1, Nos. 14 to 16) which is situated at the crossing point of both areas and requires particular attention. About one third of these—the only find from Golyamo Delchevo (fig. 1, No. 9), one find from Durankulak (fig. 1, No. 10) and the four finds from Bikovo (fig. 1, Nos. 4 to 7)—were published before but here we offer additional details and

context. The finds from Yunatsite, Dolnoslav, Skutare, Kozareva Mogila and some of the finds from Durankulak (fig. 1, Nos. 11 to 13) are illustrated and described for the first time (table 1).

We agree with Markov that the finds from Durankulak (level IV, Varna culture phase I) being robust and having a base with protuberances (fig. 1, No. 11) match closely his Northern KGK VI group. In contrast, most finds of the Southern KGK VI area are distinguished by lighter flattish shapes, and almost half of them have at least one or two perforations at the base in contrast to the representatives of the Northern group (fig. 1, Nos. 2, 5, 14 to 16). In Bikovo (fig. 1, No. 4), for example, we also find one of the rare examples of unilateral barbed points, paralleled by isolated finds in Ruse, Gumelnița, Hârșova and

Fig.1	Site, Museum Nr	Shape	Fragment	Base	Nr Barbs	Length (mm)	Width (mm)	Thick. (mm)	Diam. Perf. (mm)
1	Dolnoslav, D-1682	Bilateral, symmetric	mesio-distal	—	2x3*	110*	23	4-6	—
2	Dolnoslav, D-1683	Bilateral, asymmetric	complete	perforated	2x1	110	35	3-7	2 x 4.5
3	Yunatsite, 3317	Bilateral, asymmetric	distal	—	2x1*	61*	30	6	—
4	Bikovo, 3333	Unilateral	mesio-distal	—	1x11	168*	23.5	3.3-6.2	—
5	Bikovo, 3333	Bilateral, symmetric	nearly complete	perforated	2x30	198	26	3.12	2 x 4.9
6	Bikovo, 3333	Bilateral symmetric	mesio-distal	—	2x4*	76,2*	21.7	5.2-5.7	—
7	Bikovo, 3333	Bilateral, symmetric	nearly complete	—	2x9	161*	28.2	7.9	—
8	Skutare, RegNr 165	-	barb	—	1*	37,2	22.2	11.1	—
9	G. Delchevo, 427	Bilateral, asymmetric	nearly complete	flat	4x3	268	10-25	5	—
10	Durankulak, B-0867	Bilateral, asymmetric	nearly complete	uncertain	2x3	149	15-32	9	—
11	Durankulak, B-0401	Bilateral, -	proximal	protuberances	-	65*	6-23	6	—
12	Durankulak, B-0280	Bilateral, symmetric	distal	—	1x1*	82*	5-40	4-6	—
13	Durankulak, B-0849	Bilateral, symmetric	mesial	—	2x2*	82*	16-34	9-16	—
14	Kozareva Mogila, 4.07	Bilateral	mesial	perforated	2x1*	100*	23.5	5-7	4x6
15	Kozareva Mogila, 4.19	-	proximal	perforated	-	59*	5-14	4-5	6
16	Kozareva Mogila, 4.04	-	proximal	perforated	-	40*	8.5-16*	2-5.3	5.5

Table 1 – Late Chalcolithic barbed points made of deer antler from Upper Thrace and the Western Black Sea coast, Bulgaria.

The asterisk marks fragmentary size measurements and incomplete preservation of barbs.

Tabl. 1 – Pointes barbelées du Chalcolithique récent, en bois de cerf, provenant de Haute-Thrace et de la côte occidentale de la mer Noire, en Bulgarie. L'astérisque indique des dimensions fragmentaires et une conservation incomplète des barbelures.

Borduşani, yet the latter have different outlook more akin to the morphology of the Northern style. The documented diversity is likely due to two main factors—mode of hafting and utilization. The most slender and light examples from Yunatsite and Dolnoslav (fig. 1, Nos. 1 and 3), for example, could easily be imagined as light projectiles with detachable heads secured with a line (fig. 2a and 2b). Similar use could be expected for the pieces from Kozareva Mogila that look like detachable harpoon heads secured with a line (fig. 2b). Two are broken across the perforation that must have been the weakest point in their construction. Only number 15 has preserved its hole with the associated use-wear from lashing. The double perforations from Dolnoslav, Bikovo and Kozareva Mogila (fig. 1, Nos. 2, 5 and 14) in turn are rather small and situated one on top of the other. As their bases are flat and consistent with solid hafting (fig. 2c), the perforations look more suitable for riveting the base in a light spear rather than securing a line (Weniger, 1992). One barbed point from Hotnitsa allegedly also has a perforation but its only mentioned without details or illustration.

The remaining finds are rather diverse. There are no unfinished objects from the studied area, but the plan-

convex cross-section of most objects suggest that the blanks were acquired through bipartition mostly from the beam of red deer antler. Only the curved shape of the uniserial barbed point form Bikovo could have been made from a split brow (first) tine that could have produced two symmetrical blanks at once. The unilateral barbed object from Bikovo has curved shape making it more suitable as an outer piece of a composite multi-pronged harpoon or leister (fig. 2d), while the other three objects from Bikovo could have performed equally well as barbed spears or in the centre of such device comparable to some ethnographic examples from North America (fig. 2d). The other unilateral pieces from Ruse and Romania may have been repaired after losing a barb or had a different use.

The piece from Golyamo Delchevo with its long and excentric base was likely steadily lashed parallel to the shaft. The largest piece from Durankulak (fig. 1, No. 10) at first looks like a typical spear with solid lashing (fig. 2c), yet the incipient start of perforation on the level of the first barb may suggest intentional decision to rework it into harpoon with perforated base. The protuberances on the base of another one (fig. 1, No. 11) could indicate detachable hafting (fig. 2a).

2. GEOGRAPHIC DISTRIBUTION AND CONTEXT

Almost all barbed points in Bulgaria are found in multilayered and fortified tell settlements (fig. 3). The only exception is Skutare which is a flat site with horizontal stratigraphy. The likely reason for the concentration of finds in tell settlements is that they stand out in the landscape and attracted the attention of archaeologists with an average diameter ca. 100 m, e.g. Dolnoslav: 80x100x6.25 m, Yunatsite: 100x100x7 m, Durankulak: 100x190x3.2 m, Kozareva Mogila: 110x110x12 m, the smallest being Golyamo Delchevo (50x50x7.40 m) and the largest—Bikovo (ca. 200x200x10 m). Hundreds of contemporary graves excavated near the sites of Durankulak, Golyamo Delchevo, Kozareva Mogila and among the ruins of the uppermost Chalcolithic levels at Yunatsite and Ruse contained numerous socially meaningful inventories reflecting age and sex related roles, but none contained a single piece of a barbed point, suggesting that these objects likely had considerably limited social importance in the KGK VI society. In fact, the settlement middens of tell Ruse alone produced ca. 80% of all harpoons in Bulgaria while the remaining sites offered just a handful of objects with various shapes that may have been made and used by single individuals on a single occasion. All finds are broken pieces and were likely brought back to the settlement within the carcass of the prey or together with the retrieved harpoon shaft. Most of them are found discarded in outdoor areas. Wherever there are multiple finds in a settlement, they tend to cluster together.

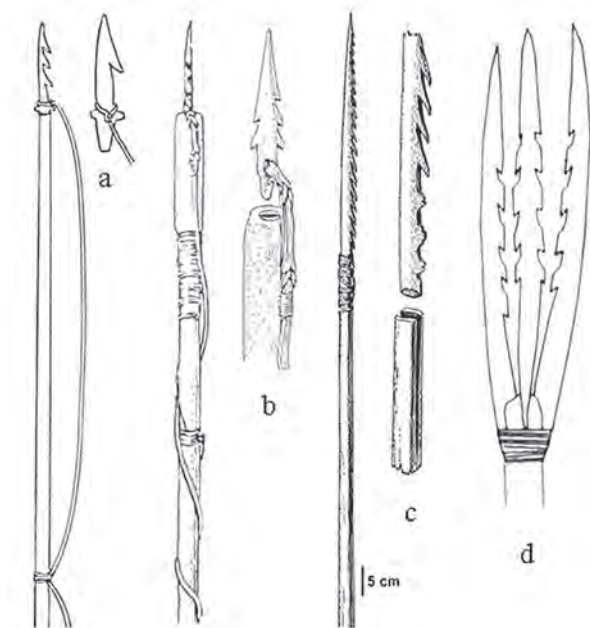


Fig. 2 – Ethnographic parallels for the modes of hafting and use of barbed points with detachable and fixed heads from the Americas (a: NW coast harpoon after Stewart, 1973, pp. 132–133; b: Sledge island [NW coast] barbed harpoon after Mason, 1900, pl. 11; c: Fuegian spear from the Magellan strait after Mason, 1900 pl. 2; d: NW coast multipronged spear after Weniger, 1992, p. 201, fig. 2).

Fig. 2 – *Parallèles ethnographiques pour les modes d'emmanchement et d'utilisation des pointes barbelées à têtes amovibles et fixes des Amériques (a : harpon de la côte nord-ouest, d'après Stewart, 1973, p. 132-133 ; b : harpon barbelé de l'île Sledge [côte nord-ouest], d'après Mason, 1900, pl. 11 ; c : lance fuégienne du détroit de Magellan, d'après Mason, 1900, pl. 2 ; d : lance à plusieurs pointes de la côte nord-ouest, d'après Weniger, 1992, p. 201, fig. 2).*

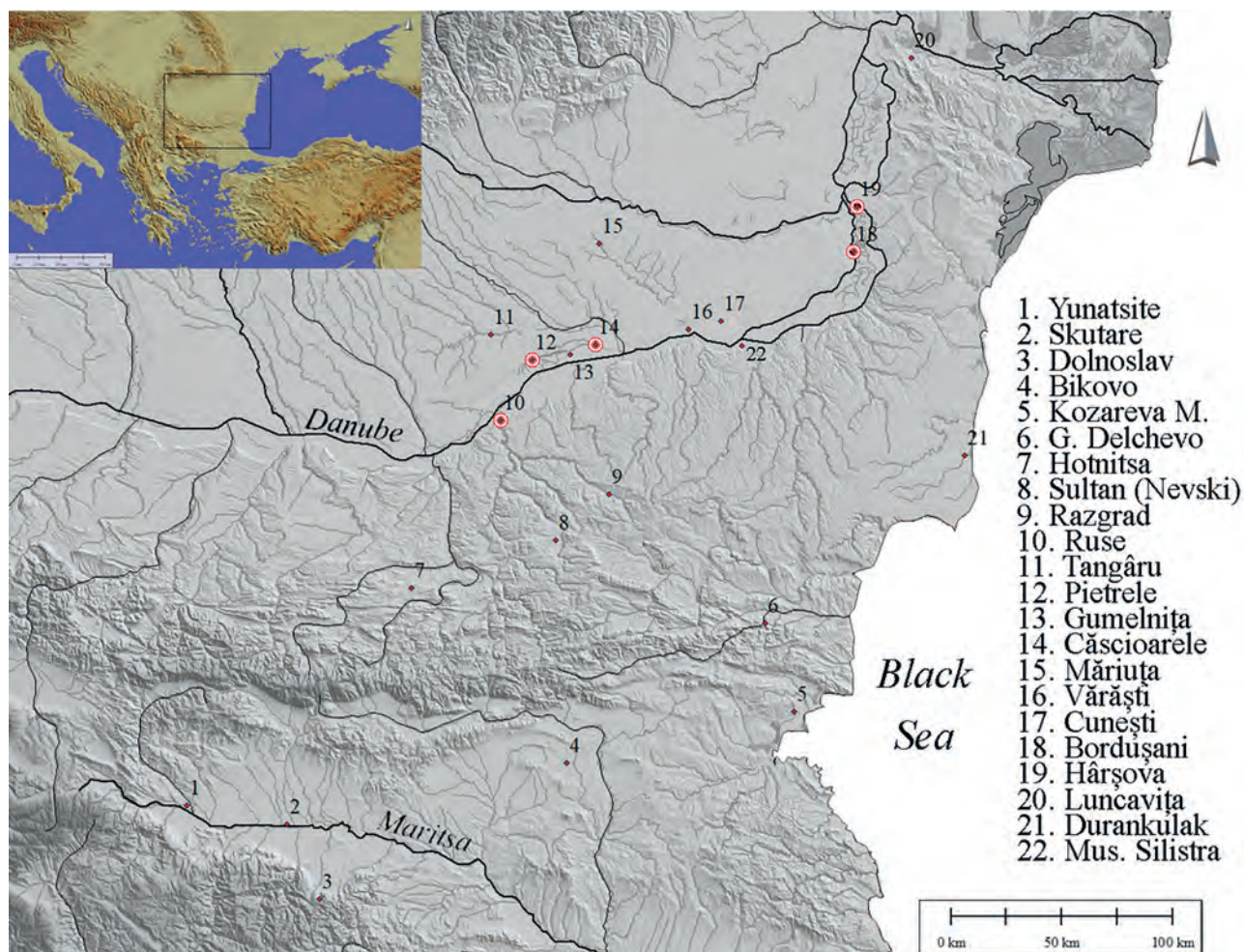


Fig. 3 – Distribution map of the Late Chalcolithic barbed points in Bulgaria and Romania.

Circles mark sites with more than 10 finds (GIS sources: *OpenTopography SRTM Worldwide Elevation Data* [1-arc second Resolution, SRTM Plus V3 from www.opentopography.org] and free vector map data for rivers and coastlines at 10m scale by Natural Earth [naturalearthdata.com]; CAD P. Zidarov).

Fig. 3 – Carte de répartition des pointes barbelées du Chalcolithique récent en Bulgarie et en Roumanie.

Les cercles indiquent les sites comptant plus de 10 découvertes (Sources SIG : *OpenTopography SRTM Worldwide Elevation Data* [résolution de 1 seconde d'arc, SRTM Plus V3, www.opentopography.org] et données vectorielles libres des cours d'eau et des lignes de côte à l'échelle du 1:10 000 000, Natural Earth (naturalearthdata.com); DAO P. Zidarov).

3. CHRONOLOGY

None of the finds discussed in detail here are directly radiocarbon dated, but some of their findspots also produced radiocarbon samples (fig. 4). We have assembled only those samples that belong to levels containing barbed points and modelled them in Bayesian chronological framework using OxCal v.4.4.4. The results show a rather short duration of their use falling roughly in the third quarter of fifth millennium BC starting in 4485–4385 cal BC (95% probability) and ending in 4440–4305 cal BC (95% probability). Thus, the barbed points could have been in use for a period of 0–161 years (95% probability). This timeframe is roughly contemporary with the remaining KGK VI sites producing barbed points to the north of Danube (Mărgărit, 2023, p. 162, table 1).

4. DISCUSSION

One of the most interesting topics is whether the barbed points should be seen as environmental adaptation or cultural hallmark. There are both ethnographic records for the use of barbed points as harpoons for fishing and hunting mammals as well as archaeological finds documenting clear spatial associations of some barbed points with skeletons of large fish, mammals and even humans (Mason, 1900; Weniger, 1992; Hartz et al., 2019; Verhart, 2000). In contrast to many of the Mesolithic specimens that were light and could be fitted as projectiles, most of the KGK VI barbed points are considerably bigger and heavier, with robust tips, often asymmetrically spaced bilateral barbs and a conical base often furnished with lateral protuberances for securing a harpoon line or lashing them firmly to the shaft. The average width of the

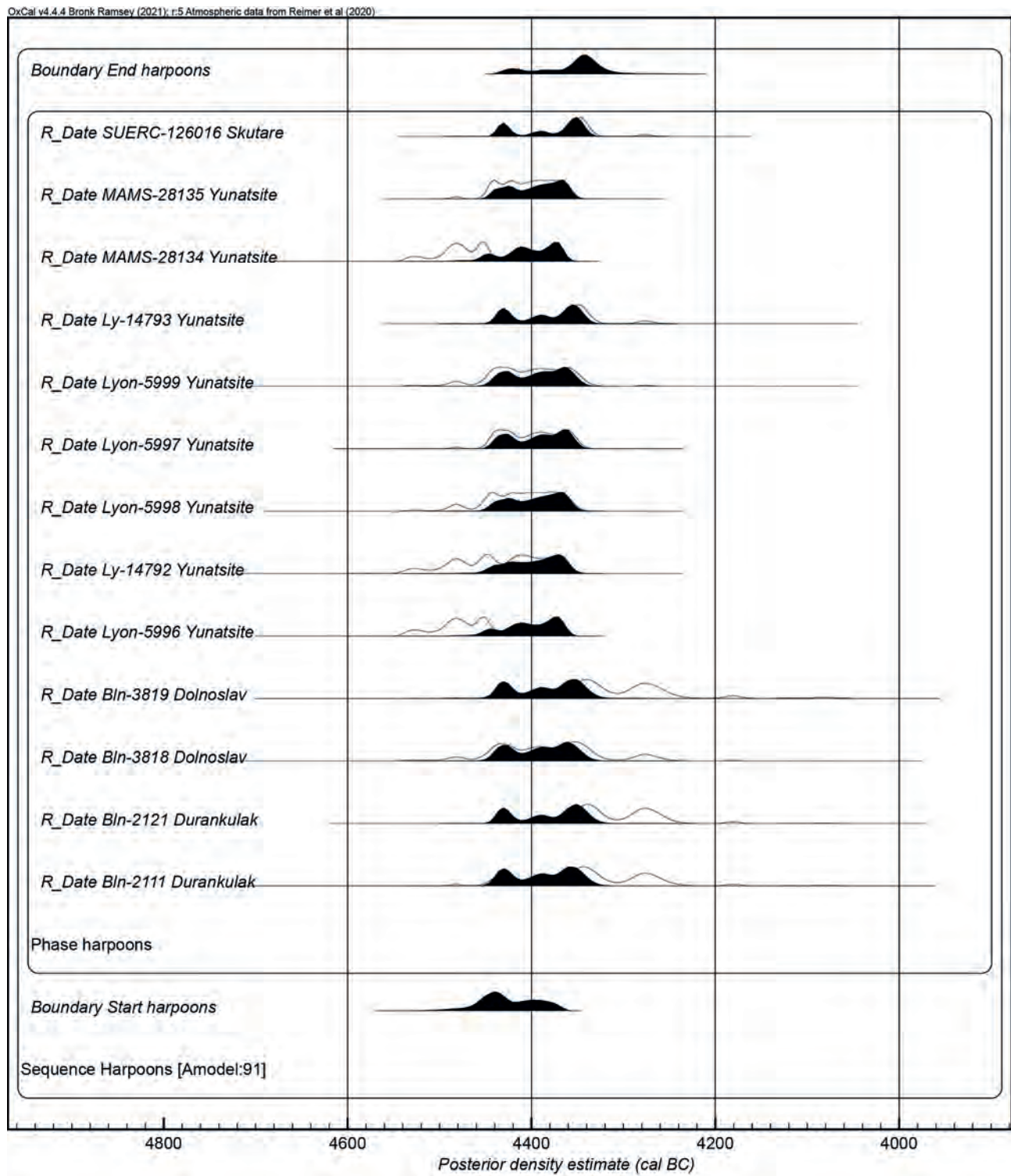


Fig. 4 – Selected and calibrated radiocarbon dates from levels producing barbed points in Late Chalcolithic sites in Bulgaria (P. Zidarov, B. Gaydarska).

Fig. 4 – Datations au radiocarbone sélectionnées et calibrées à partir de niveaux produisant des pointes barbelées dans des sites du Chalcolithique tardif en Bulgarie (P. Zidarov, B. Gaydarska).

base in the range of 13-17 mm requires shafts at least of the same diameter indicating their use as heavy spears that could have been thrust, thrown by hand or even shot with a spear-thrower.

Even though theoretically there is considerable range of possible targets, the majority of the KGK VI

barbed points, however, are mostly known from waterfront settlements and may have been indeed used for exploitation of aquatic resources. In fact, some of the most representative results to date are acquired during the systematic excavations at the Chalcolithic tell near Pietrele on the Romanian shore of Danube which

produced dozens of barbed points while the studied fish remains amount to tens of thousands skeletal elements (Benecke et al., 2013; Hansen, 2015; Hansen et al., 2017, pp. 87–93). It is quite interesting that both the barbed points and the fish remains were unequally distributed across the excavated part of the settlement and between households. Most of the barbed points were retrieved around the houses on the southern slope of the tell (trench F) wherefrom comes also the greatest amount of fish bones, especially the larger specimens of catfish measuring on average over one metre as well as those reaching up to three metres. Among the other large fish species that were considered suitable for spearing are larger carp, pike and zander (Ritchie, 2017, p. 332). It is uncertain whether this spatial correlation can be interpreted as causation but until someone succeeds to extract organic residue from the barbed points, it remains the most likely explanation for the possible targets. Yet, the combination of the stable isotope analyses of carbon and strontium in the human bones indicate that only a few and mostly female individuals at that likely consumed fish on a regular base (Hansen et al., 2017, pp. 87–93).

Along similar lines one can interpret the data from the coastal lagoon site at the Big Island near Durankulak which offered both the largest collection of fish remains from a Chalcolithic site in Bulgaria (Heinrich, 1998) as well as the largest excavated and published prehistoric necropolis (Todorova, 2002). Somewhat surprisingly, regardless of the numerous fish bones and even the presence of few barbed points at Durankulak (fig. 1, Nos 10 to 13, table 1), the values of the stable isotopes of its Chalcolithic inhabitants and 60 individuals from the contemporary Varna necropolis also situated close to the Black Sea coast, shows only a limited consumption of aquatic resources. This means that even though the local population certainly caught and consumed it, the fish (and not necessarily only the speared fish) must have played only a limited complementary role in the menu of most people there (Gaydarska et al., 2022 and 2024).

The review of the archaeological publications did not help to trace any direct precursors to the appearance of the unilateral barbed points (leisters) like the one from tell Bikovo except for an Early Neolithic single find from Malak Preslavets on the Danube (Панайотов et al., 1992). Unilateral harpoons are better known from much earlier Mesolithic sites and distant origins (Andersen, 1971) making it difficult to establish connection.

At this point, it is unlikely that the limited numbers of harpoons dating to the Neolithic (6100–4900 cal BC) and Early Chalcolithic (4900–4600 cal BC) period in southeastern Europe could indicate sustained local development. Yet, the surge of findings during the Late Chalcolithic in the eastern Balkans that look rather similar to earlier barbed points in Hungary, Serbia and Russia could certainly indicate technological transfer and likely reveal intensified contact and integration of hunter-gatherer-fisher technologies (and their proponents) in otherwise well-developed farming society

paralleled by the increased importance of wild game, fishing and fowling (Manhart, 1998; Benecke et al., 2013; Georgieva, 2014; Hansen et al., 2017). Interestingly the documented early use of barbed points (among broader antler repertory) along the Danube in Lengyel and Tisza-Herpály-Czőszhalom complex communities in Hungary (Zalai-Gaál, 2004), and selected sites like Vinča in Serbia, Vădastra and Boian level at Hârşova in Romania (Comşa, 1986; Mărgărit, 2023) and only then to the KGK VI communities in the Eastern Balkans looks like a counter-current to the export of ornamental shells and copper objects from the Balkans towards Central Europe and further up to the territories of the Mesolithic communities in Northern Europe that are well known users of various barbed points. The ultimate source of origin for the introduction of Chalcolithic antler harpoons in the Balkans is not so easy to define, however, since identical type of barbed points with protuberances at the base are attested during the first quarter of the fifth millennium BC not only to the northwest, but also to the northeast at Syezzheye in the forest steppe region along Volga in Russia (Vybornov et al., 2023). There it seems to have had sustained development at least until the second quarter of the fifth millennium BC when it is attested at Khvalynsk I necropolis which in turn is best known for the import of Balkan “Varna” copper beads (Chernykh, 1992; Anthony et al., 2022). Characteristic ceramic imports from the Northern Pontic (shell tempered C ware pottery) are found also as far south as Kozareva Mogila on the Bulgarian Western Black Sea coast (Georgieva, 2014, p. 223) adding evidence for long-distance contacts along the same axis. Such exchange networks may provide the framework for the mutual interest, interaction and technological transfer between contemporary populations with different subsistence economies (Klassen, 2000; Georgieva, 2014; Scharl, 2023). However, since the introduction of farming required considerable demographic input, it is quite likely to expect that should it be partially reversed, the counter process would likewise require certain demographic input from hunter-gatherer-fisher background and in fact this becomes increasingly visible in current genetic studies (Mathieson et al., 2018; Penske et al., 2023, p. 360). So, future studies of short living types of hunting-fishing devices should look at integrating cultural, dietary and genetic data into traditional technological comparisons.

Interestingly the flattish harpoons with perforated bases from Dolnoslav, Bikovo and Kozareva Mogila find contemporary parallels in Northern Greece at Anarghiri IX (Arampatzis, 2024, p. 94, fig. 10a) as well as among the earliest Swiss Neolithic sites like Egolzwil 3 in the canton of Lucerne (Ramseyer, 1988) that are likewise radiocarbon dated to the third quarter of the fifth millennium cal BC (Gibaja et al., 2017, p. 216). As there are no known local Neolithic precursors in both regions, we could at least assume that in that case the source of origin of that innovation may have been common or even originating in Upper Thrace.

CONCLUSIONS

The study outlines two areas of distribution of the barbed antler points during the third quarter of the fifth millennium BC in the eastern part of the Balkans. The largest group of finds is located along the Lower Danube and its tributaries. Typically, these are relatively massive with bilateral asymmetrically arranged barbs with and without protuberances at the base indicating that they were steadily fixed to a wooden handle. Their prototypes can be found among single Late Neolithic and Early Chalcolithic artefacts not only in the same area but across a much larger territory stretching from the middle reaches of the Danube from modern Hungary and Serbia to southern Russia.

In contrast, the harpoons found in Upper Thrace are characterized by idiosyncratic variability of shapes and sizes including both uni- and bilateral, narrow and widely spaced rather symmetric barbs. They are slender and lighter, and quite a few have holes at the base. It can be assumed that the Thracian barbed points either have other, as yet unidentified, prototypes or represent a creative local “response” to an external stimulus resulting not in imitation, but in creative interpretation. Considering the chronological priority of the appearance of holes at their bases, the Thracian harpoons may have even served as prototypes for similar devices later known from lake-side villages in Macedonia and around the Alps.

Acknowledgements: RM is grateful to the Ministry of Culture of Bulgaria for funding the exhibition “The magic of tell Dolnoslav” at the Regional Archaeological Museum Plovdiv that gave the impetus for that study. PZ is grateful to the colleagues who actively shaped the outcome of this paper through intellectual input and access to finds: A. Choyke (Budapest), J.-M. Pétillon (Toulouse), M. Mărgărit (Târgoviște), S. Vitezović (Belgrade), D. Markov (Nova Zagora), H. Todorova, I. Vajsov, P. Georgieva, K. Boyadzhiev (Sofia), S. Hansen (Berlin), M. Toderas (Bucharest), V. Slavchev and O. Pelevina (Varna), E. Bozhinova (Plovdiv), P. Panchov (Pazardzhik), D. Dilov (Razgrad), B. Gaydarska (Durham), and especially to my teacher P. Georgieva (Sofia University) for the first chance to analyze any Chalcolithic barbed points from Kozareva Mogila already during my undergraduate studies as well as for the discussions inspiring this paper. I. Ivanova prepared the drawings. PZ extends his gratitude also to the directors and the staff from the institutions that supported his research and granted him access to study collections over the years at the Regional Archaeological Museum Plovdiv, Regional Historical Museum Pazardzhik, Regional Historical Museum Dobrich, Regional Historical Museum Varna, DAI-Eurasien and National History Museum Bucharest. We are also grateful to the reviewers and editors of the publication, whose recommendations significantly improved the final version.

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