

Dating the ladies: spatio-temporal development of the Early Bronze Age cemetery at Nižná Myšľa (Slovakia)

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ABSTRACT – *The cemetery in Nižná Myšľa is one of the most important funerary sites in Early Bronze Age Central Europe. Many years of excavations led to the discovery of nearly 800 graves associated with the Otomani-Füzesabony culture. The presented paper is an attempt to reconstruct the spatial development of the cemetery, based on statistical analyses of grave goods and using the latest findings concerning the absolute chronology of selected categories of finds. A significant role in the analyses was played by female burials, in which numerous objects were discovered, which were evidence of the relatively high status of women in the local community. This provided the authors with a basis for discussion with regard to the dominant male-oriented narratives concerning the communities of fortified settlements.*

KEY WORDS – *Otomani-Füzesabony; Early Bronze Age; correspondence analysis; chronology; female status*

Datiranje žensk: prostorsko-časovni razvoj starejšega bronastodobnega grobišča Nižná Myšľa na Slovaškem

IZVLEČEK – *Grobišče Nižná Myšľa je eno od najpomembnejših pogrebnih prostorov iz časa starejše bronaste dobe v Srednji Evropi. Večletna izkopavanja so odkrila ok. 800 grobov, ki so vezani na kulturo Otomani-Füzesabony. V našem prispevku skušamo rekonstruirati prostorski razvoj grobišča, in sicer s pomočjo statistične analize grobnih pridatkov in z uporabo najnovejših ugotovitev, ki so vezane na absolutno kronologijo izbranih kategorij najdb. Pomembno vlogo pri analizi imajo ženski grobovi, v katerih so bili odkriti številni pridatki, kar kaže na višji družbeni status žensk v lokalni skupnosti. To predstavlja avtorjem tudi osnovo za razpravo o prevladujočih zgodbah, ki so osredotočene na moške, v povezavi s skupnostmi, ki so živele v utrjenih naselbinah.*

KLJUČNE BESEDE – *Otomani-Füzesabony; starejša bronasta doba; korespondenčna analiza; kronologija; status žensk*

Introduction – the Early Bronze Age site at Nižná Myšľa

The Nižná Myšľa (hereinafter NM) site, located in the Košice Basin, is one of the best archaeologically recognized elements of the Otomani-Füzesabony (hereinafter OF) culture settlement network in Slovakia (Fischl, Olexa 2020) and more broadly – in

the vast area where the mentioned phenomenon developed (Fig. 1) (Fischl, Kienlin 2020).

Archaeological research on the NM site began in the late 1970s and is still carried out today by a team

led by Ladislav Olexa (Olexa 2003.10–12; Olexa, Nováček 2015.9–12). As a result of several decades of research, the complex structure of the site was identified, consisting of two separate fortified settlements, different in terms of chronology, with a cemetery associated with the older one (Olexa 2003; Olexa, Nováček 2013; 2015; 2017). Both settlements were surrounded by extensive and massive fortifications in the form of walls and ditches (Jaeger 2016.113–114). The excavations of their interiors provided numerous remains of huts (mainly in the form of partially preserved compacted loess floors and hearths) and pits with various functions. The main difference between the two settlements was the size and space they occupied. The fortifications of the older settlement covered an area of approx. 50x60m. The younger settlement covered a much larger area of approx. 7ha (Gašaj 2002.27). Its fortifications also had larger dimensions and a more complex structure. They covered not only the layers and remnants of the buildings of the older settlement, but also the area of the cemetery associated with it, which is the subject of the current analysis (Gašaj 2002.33; Olexa, Nováček 2015.8). The burial place related to the younger settlement has not been discovered so far.

Chronology and space of the cemetery – the current state of knowledge

Over a long period of research, a total of 792 graves (including cenotaphs) have been discovered in the cemetery (Fig. 2) (Olexa, Nováček 2013; 2015; 2017). Most of the burials were preserved well enough to determine the age and sex of the deceased (Nováček 2017.24). Grave goods and the forms of burials were thoroughly analysed by Tomáš Nováček as part of his PhD thesis (Nováček 2017). On the basis of typochronology and the few available radiocarbon dates, the development of the cemetery was divided into three horizons correlated with the local chronological system based on the classical scheme by Paul Reinecke (1924): (i) the pre-classical horizon (BA2); (ii) the older classical horizon

(BA2/BA3); and (iii) the younger classical horizon (BA3).

No archaeological sources related to the earliest Košťany-Otomani stage of OF development in Slovakia have been observed in the cemetery. Its decline, on the other hand, precedes the youngest stage of OF development in the BB1 period, when a second fortified settlement was established, covering the area of an older settlement and a cemetery (Nováček 2017.16–19).

The typochronological order of the sources from the cemetery (*O.c.*) was to be generally reflected in its specific spatial arrangement. The oldest burials (BA2) were grouped in the western part of the area, in the central one artefacts from the ‘transition period’ (BA2/BA3) were found, while in the eastern part the burials with the typologically youngest finds (BA3) were located.

Generally, it can be said that the burials were arranged regularly, in linear patterns along the W-E axis. The linear plan of the cemetery also shows that individual burials located closer to each other form separate groups in several cases. The lack of a significant number of graves with a similar relative chronology remaining in a stratigraphic superposition (only two cases; *O.c.*35) allows us to assume that they were originally marked on the surface. Their locations were respected while preparing a new burial place.

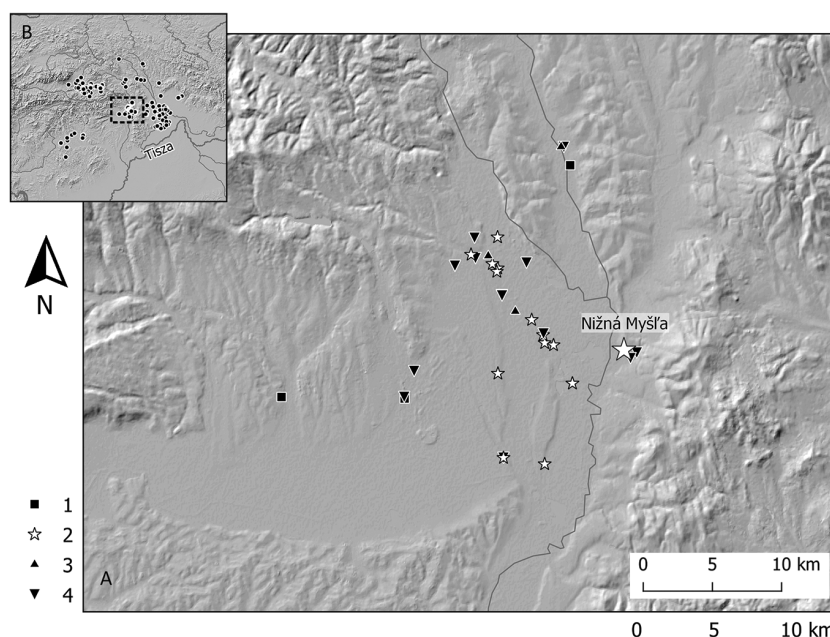


Fig. 1. Distribution of Otomani-Füzesabony culture sites in the area of the Košice Basin (A): 1 stray finds; 2 cemeteries; 3 hilltop or fortified settlements; 4 open settlements. General distribution of Otomani-Füzesabony culture sites in the territory of present-day Slovakia (B).

The chronology and space of the cemetery in the light of statistical analysis

The small number of radiocarbon dates available, in the context of the very large number of burials discovered at the site, hinders the spatial and chronological debate. However, in order to achieve this goal, it was decided to apply a set of statistical methods combined with the current state of knowledge about the absolute chronology of particular finds registered on the NM cemetery.

On the one hand, the aim of the analysis was to verify and possibly clarify the chronological scheme presented by Nováček (2017)¹, and on the other, to try to recreate the history of the cemetery's development in terms of absolute chronology.

Methods and selection of sources

The choice of grave goods is not accidental, but related to the existence of cultural and social rules in a given place and time. In light of the huge amount of data from the cemetery in NM, it was decided to use multidimensional statistics. One of the methods used to reduce and classify data is Correspondence Analysis (hereinafter CA). The advantage of CA over other statistical analysis is not only the search for correlations between data offered by it, but also the presentation of the actual structure within them, regardless of the degree of its irregularity (Jensen, Høilund-Nielsen 1997:3–7). CA has found wide application in archaeology, including detailed studies of burials (O.c.39).

In order to determine the degree of dependence between individual NM burials, the finds constituting grave goods were subjected to statistical analysis. To avoid the 'garbage in/garbage out' effect, it was decided to reduce the variables to those with a relatively high frequency of occurrence (more than 10 cases). In this way, it was possible to detect significant trends in the analysed correlation. In addition, data regarding grave goods were supplemented with information about the sex and age of the deceased. These are

important anthropological categories, practically without exception culturally valued in prehistory (Müller 2005) and as such they may constitute factors significantly influencing the shape of the relationship of attributes within the set. The results of the CA helped to establish the chronological and spatial sequence in the process of shaping the NM cemetery (Fig. 3). Due to the size of the cemetery and its complexity, it was decided to perform a two-stage analysis.

The results of the analysis – chronology

At the first stage, all graves were taken into account and analysed on the basis of selected variables characterizing separate statistical trends (Fig. 3.a). The obtained results clearly show two concentrations of points. This division largely coincides with the relative chronology of individual graves in the cemetery. Burials interpreted as older and related to the A2 period appear on the left side of the chart, while graves generally dated to the A3 period on its right side. The boundary between both sets can be taken as the area running through the centre of the graph (on the Y axis, approximately between the values -0.75 and 0). The graph shows a clearly greater correlation of points and attributes associated with the A3 phase. This may suggest a greater unification of the burial rite and a certain standard existing in the funeral inventory at that time. The correlation of the variables is also more concentrated, which strengthens the above-mentioned interpretation. On the basis of the obtained results, it is possible to indicate the elements of grave inventories which are dominant in the various stages of the

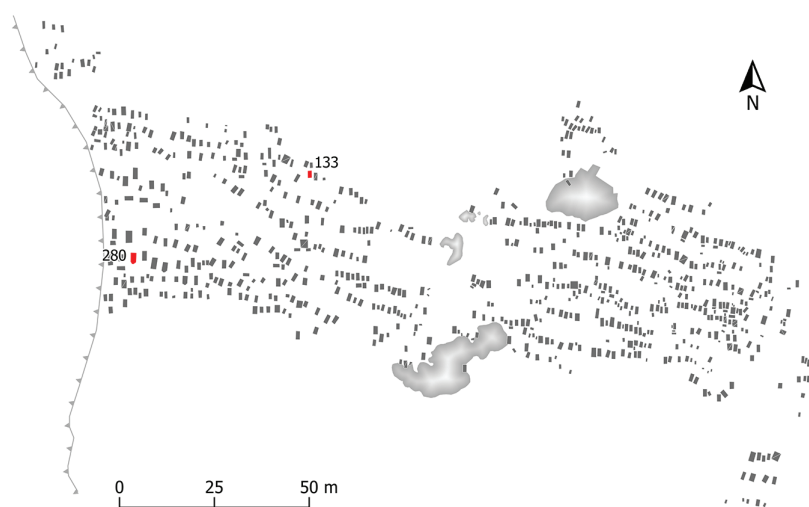


Fig. 2. Nižná Myšľa. General plan of the cemetery. Metallurgists' graves marked in red.

¹ In this text, the terminology taken from the cited study is used with regard to ceramic forms.

existence of the cemetery. For the A2 period, this would be the set consisted of: boar tusk pendants, arrowhead(s), bone awl, bone needle, Rollenkopf pin type II, shell, obsidian, DC jug, and PB cup. The bronze earring and the HA pot were of marginal importance. However, for the A3 period, a characteristic set consisted of: needle-like pins, Rollenkopf type II pins, Kugelpopf and Hülsenkopf type pins, amber, faience and more ceramic forms, *i.e.* DA and DB jugs, PB cup, HB pot, MB2 bowl and settlement vessel. Bronze awls and daggers were of less importance (from a statistical point of view), although their presence should be noted.

There is a tendency with regard to the sex and age of the deceased. Namely, men are located in the centre of the chart, which proves the equivalent occurrence of male deceased in both (A2 and A3) periods of the cemetery's existence. On the other hand, women are more correlated with the younger period (A3). At this stage of the analysis, the relationship between the sex of the deceased and their age was also documented. The following relationships are visible: male → *adultus*, female → *infans*, and *iuvenis*. These results prompted the authors to make the analysis more detailed, and thus in the next stage separate calculations were made for both sexes of the deceased (Fig. 3.b-c).

As a result of separate CA analysis of the male and female burials, the chronological division visible in the previous analysis was maintained. In the case of CA of male burials, a smaller correlation of individual attributes is noticeable, mainly in the A3 period, which may indicate greater diversity (greater freedom) in the selection of grave goods or a different level of complication of the rules of the burial rite. For the A2 period, a set of grave goods typical for a male burial (boar tusk/boar tusk ornaments, arrowhead(s), PB cup, shell, bronze earring, Rollenkopf pin type I, awl and bone needle) on the one hand clearly refers to the figure of 'man-hunter', on the other hand, to some extent, it corresponds to female burials, which would indicate a certain stage of unification of the grave goods in regard to both sexes (see below). In the A3 period, ceramic forms appear in a larger number than previously (DA and DB jugs, MA and MB2 bowls, PA cup, HB pot). On the other hand, the CA results for female burials indicate a much lower degree of inertia of the attributes taken into account in the analysis, which suggests a strict set of grave goods for particular chronological periods. In the BA2 period, the dominant grave inventory (bone awl and bone needle, shell, Rollen-

kopf pin type I, PB cup, DC jug) can be partially perceived as related to economic activities within the household (bone awl and bone needle), moreover, a modest representation of ornaments is noticeable. However, in the A3 period, there is a clear change in this respect. There are numerous items made of less accessible non-local raw materials and of foreign stylistic (amber, faience, Rollenkopf type II, Kugelpopf, Hülsenkopf and needle-like pins) and new ceramic forms (PA cup, DA and DB jugs). The above results show that the rules of burial rite vary over time and, for some time, depend on the sex of the buried individual (Fig. 4).

In order to detail the chronology of the cemetery in NM, it was decided to use information from studies on selected categories of finds carried out for other areas of Central Europe (Stockhammer et al. 2015; Erné 2015; 2020; Brunner et al. 2020; Massy, Stockhammer 2020). A detailed analysis of the grave goods from NM burials (Nováček 2017.40–115), supported by the results of statistical analysis, made it possible to distinguish chronologically most 'sensitive' finds from the available set. They were mainly ornaments, *i.e.* boar tusk pendants and different types of bronze pins. A total of 277 pieces of bronze pins were identified in NM burials (Nováček 2017.81–82). Four types were the most numerous: Rollenkopf, needle-like, Hülsenkopf and Kugelpopf pins. The rest of the finds are mostly fragmentary preserved pins that cannot be identified typologically. Pins are the most numerous group of non-ceramic items among NM grave goods (Nováček 2017.81). The vast majority of them were placed in female burials of all age categories identified at the site.

As mentioned in the introduction, the NM site has a very complex structure and history of development, within which there were two settlements and probably also two cemeteries. The younger settlement did not respect the funeral space created by the community previously inhabiting the selected area, as evidenced by a large number (201 cases) of graves disturbed while digging pits of various functions (Nováček 2017.36). Unfortunately, there is a small amount of radiocarbon dates that would allow us to reconstruct the settlement's development and burial rites' changes at the site. All radiocarbon datings from the settled area are associated with a later stage of the younger settlement's existence (Jaeger 2016.130–131; Nováček 2017.18–20). For the cemetery, we have only two radiocarbon datings, coming from the metallurgists' graves (Fig. 2) (Olexa 1987; Jaeger, Olexa 2014) and locating them in the

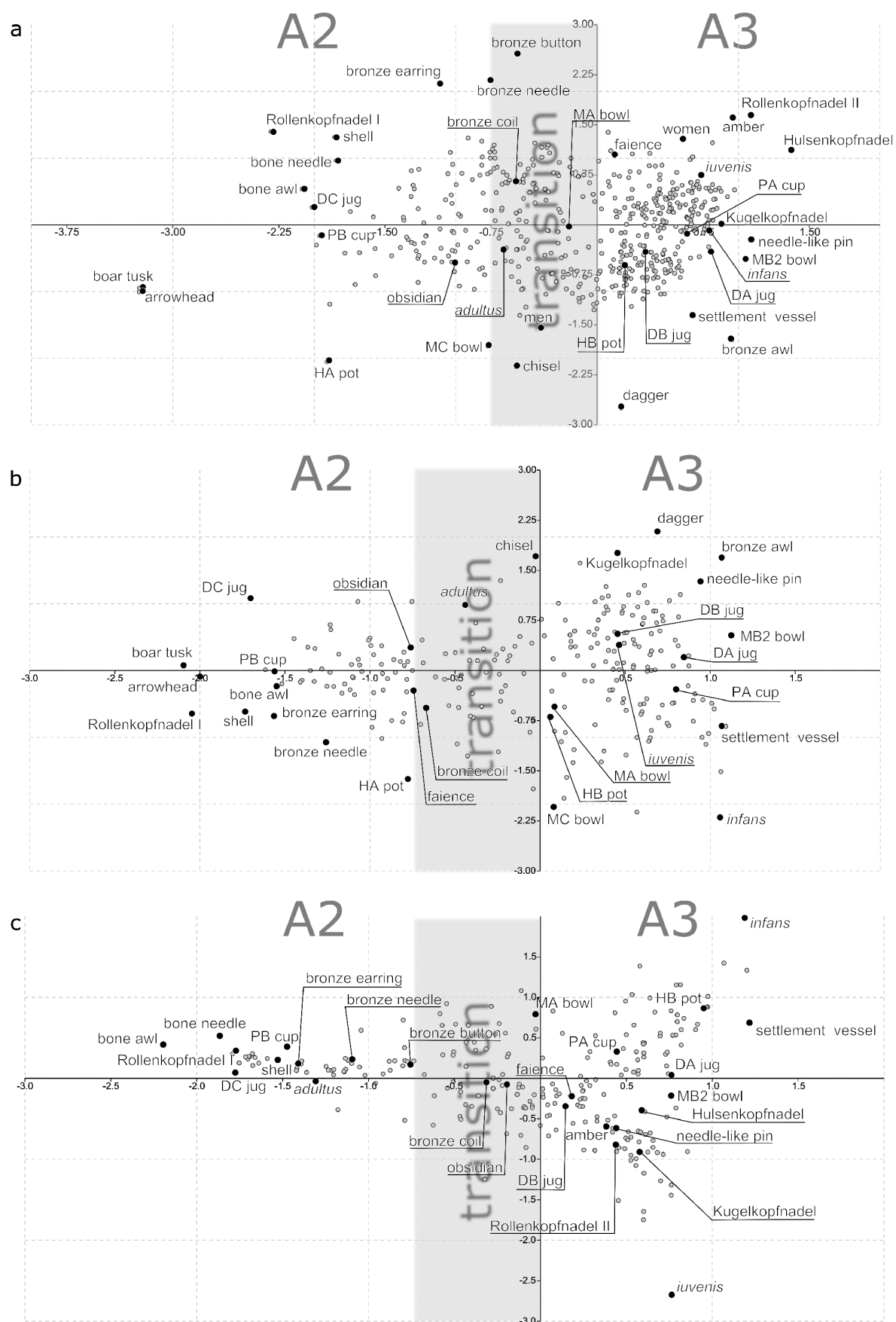


Fig. 3. Nižná Myšľa. Results of correspondence analysis of grave goods for: a all graves; b male graves; c female graves (shown on the 1st and the 2nd eigenvectors).

older stage of the funeral space existence. However, the age of these graves is important due to the particular items that make up their grave goods. Among them the most significant are casting moulds. In grave no. 280, a casting mould for a pin with a spherical head (Kugelkopf type) was discovered, a ready-made example of such a pin (unornamented), and ornaments made of boar tusks. These items have relatively many radiocarbon-based analogies that indicate their location more precisely on the time scale. The discovery of the casting mould can be treated in this context as a chronological reference point (*terminus post quem*) in the discussion concerning the age of burials equipped with Kugelkopf pins in the NM cemetery. In the case of grave no. 133, the discovered casting mould was used to produce simple forms of Rollenkopf pins. Two types of Rollenkopf pins are known from NM burials and they have a different chronological position. The first type had a rolled tip (type I) and the second one had a tip which was first flattened and afterwards rolled (type II).

The analysis of available radiocarbon dates related to specific pins also present in NM burials allows for a new look at the spatial development of the cemetery. In the light of the available dating for the boar tusk ornaments, bone needles, and following pin types, the correctness of the general development trend of space along the W-E axis, determined with the use of typochronological data, can be indicated (Fig. 5). In the western part of the site, there are mostly female burials equipped with simple Rollenkopf pins type I. They are typologically the oldest forms, which in statistical analysis correspond to the oldest male burials, characterized by the presence of obsidian arrowheads, bone needles and ornaments made of boar tusks (Fig. 5.a-b). Available radiocarbon dates coming from other regions of Central Europe dating Rollenkopf pins type I, ornaments made of boar tusks, and bone needles, allow this stage of creating a funeral space in NM to be located around 2000–1900 cal BC (Stockhammer et al. 2015; Lorenz 2013). In the centre of the cemetery, the basic forms of pins deposited in graves were Rol-

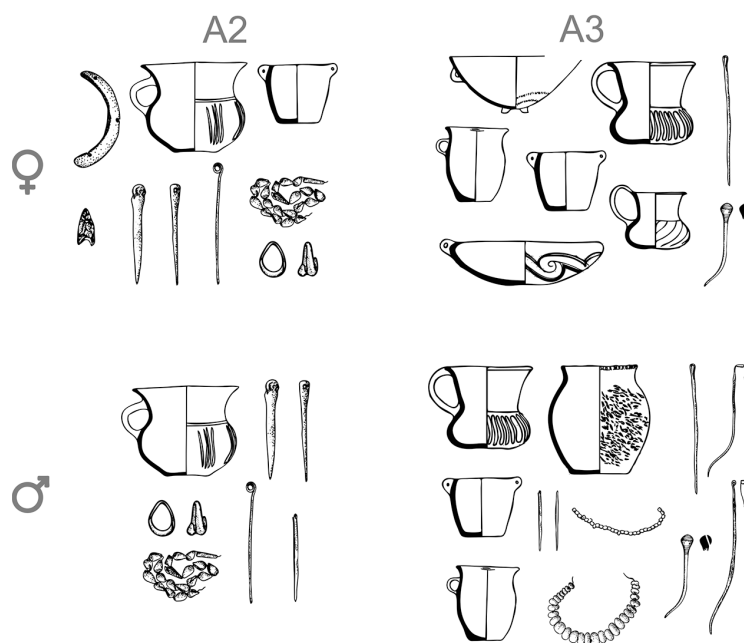


Fig. 4. Idealized grave goods sets for male and female burials in periods A2 and A3.

lenkopf pins type II and large needle-like pins (Fig. 5.c-d). The first of these are the above mentioned younger variant of the Rollenkopf pin. In turn, pins in the form of a large, sometimes decorated, needle are an eminently local form. They are probably ornaments that had their prototypes in tools – bone needles, found in numerous burials in the oldest part of the cemetery². Their aesthetic function is evidenced, on the one hand, by their delicate and non-functional structure, sometimes with decorations in the form of grooves placed under the loop, and their deposition in graves near the head or chest of the deceased. The bone needles (as well as awls, chisels and other tools) were located in NM practically without any exception near the feet of the deceased (Nováček 2017.83). The remaining pins known from NM are the Kugelkopf and Hülsenkopf pin types and are concentrated in the eastern part of the cemetery (Fig. 5.e-f).

Based on the available radiocarbon dated examples of those pins in other regions of Central Europe, it can be assumed that the central area of the cemetery was used in a relatively short period of around 1900–1850 cal BC. These dates indicate the older section of the eastern (younger) part of the area which was finally covered by the cemetery in NM. As mentioned above, the pins of the Kugelkopf type were known and locally produced in the period of

² A similar change of the raw material from bone to bronze was observed in the case of awls. These tools were made of bone in the early stage of the cemetery's existence. With time, however, these forms were replaced by examples made of bronze.

the functioning of the oldest stage of the cemetery (see the mould and the pin from grave no. 280). However, there are very few finds of this pin type in the western part of the cemetery (only three burials). Their greatest number and concentration are observed in the most eastern, *i.e.* much younger, part of the cemetery (Fig. 5.e). In this context, grave no. 280 should be treated as a remnant of the initial stage of production of a new type of ornaments, which became popular at a later period. Hülsenkopf pins have a similar location within the cemetery (Fig. 5.f). Burials equipped with pins of both types constitute the group of the youngest objects in the ceme-

tery. Based on the available radiocarbon dated examples from outside NM, the period of occurrence of these types of pins should be assumed to be around 1850–1650 cal BC (Brunner et al. 2020; Stockhammer et al. 2015).

To sum up, on the basis of the current knowledge about the absolute chronology of the occurrence of certain types of pins and boar tusk pendants in female graves (Fig. 6), the stages of the development of the funeral space in NM can be determined within the following general framework:

- stage I: BA2 – 2000–1900 cal BC (A1);

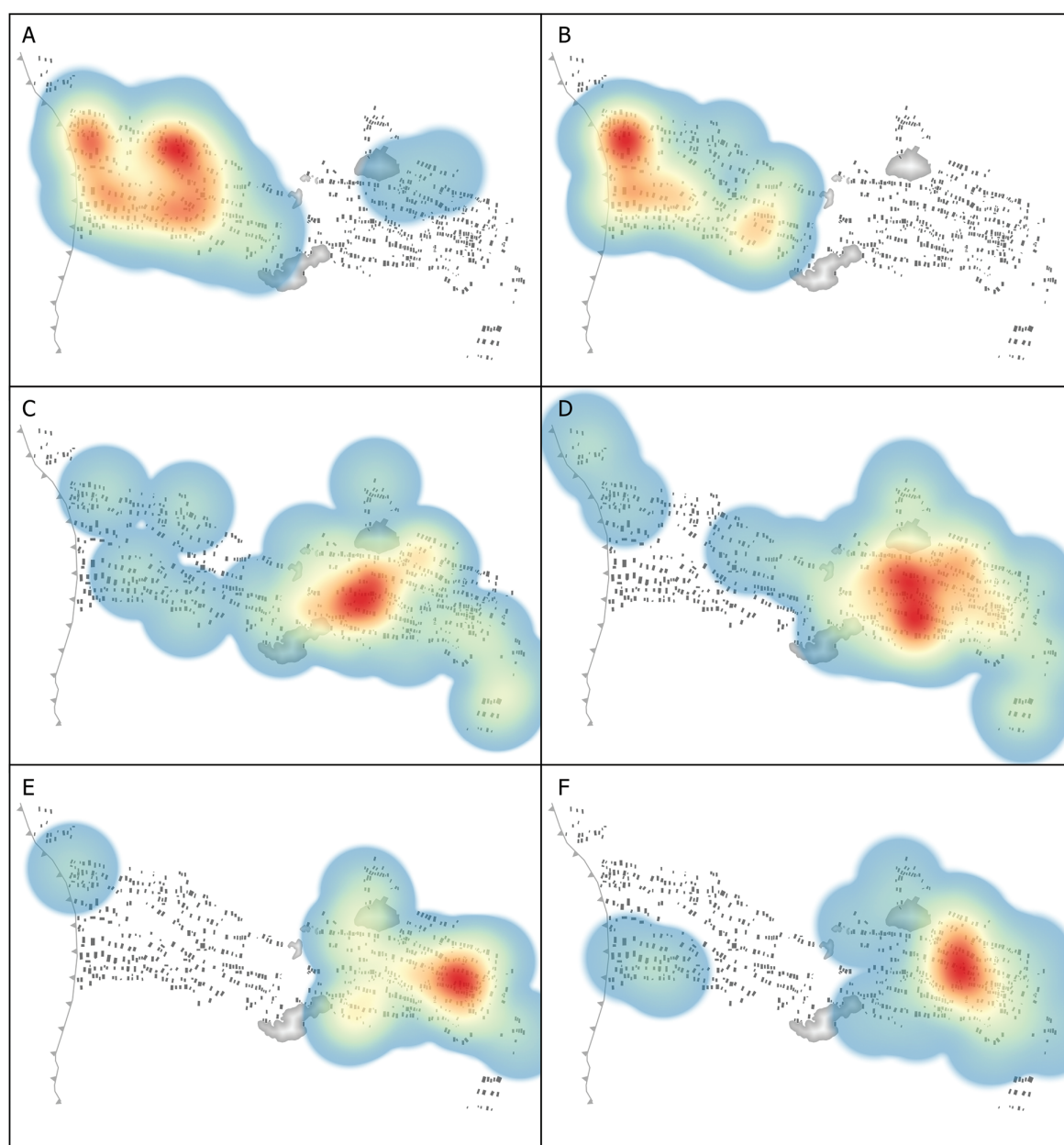


Fig. 5. Nižná Myšľa. Distribution and Kernel Density Estimation results of: A boar tusks ornaments and bone pins; B Rollenkopf pins type I; C Rollenkopf pins type II; D needle-like pins; E Kugelkopf pins; F Hülsenkopf pins.

- stage II: BA3/older – 1900–1850 cal BC (A1/A2);
- stage III: BA3/younger – 1850–1650 cal BC (A2).

The results of the analysis – space

As mentioned above, the general layout of the cemetery indicates a relatively high regularity and linearity in the location of burials along the W-E axis. The documented linear burial arrangements are not, however, the result of constructing a funeral space starting from an undefined single point as the first and oldest grave. In the light of the convergent radiocarbon dating of metallurgists' burials, which

were located in separate groups, at a large distance from each other, within the western part of the cemetery (Fig. 2), it can be assumed that the observed arrangement of the cemetery space is instead the result of creating it simultaneously in several places. In other words, the arrangement of individual groups of burials probably reflects the ties between the deceased in life, although the chronological dimension of this practice can also be grasped to some extent. Assuming the hypothesis that the burial places of families appeared as spatially separate groups of graves, the methodology used in spatial statistics

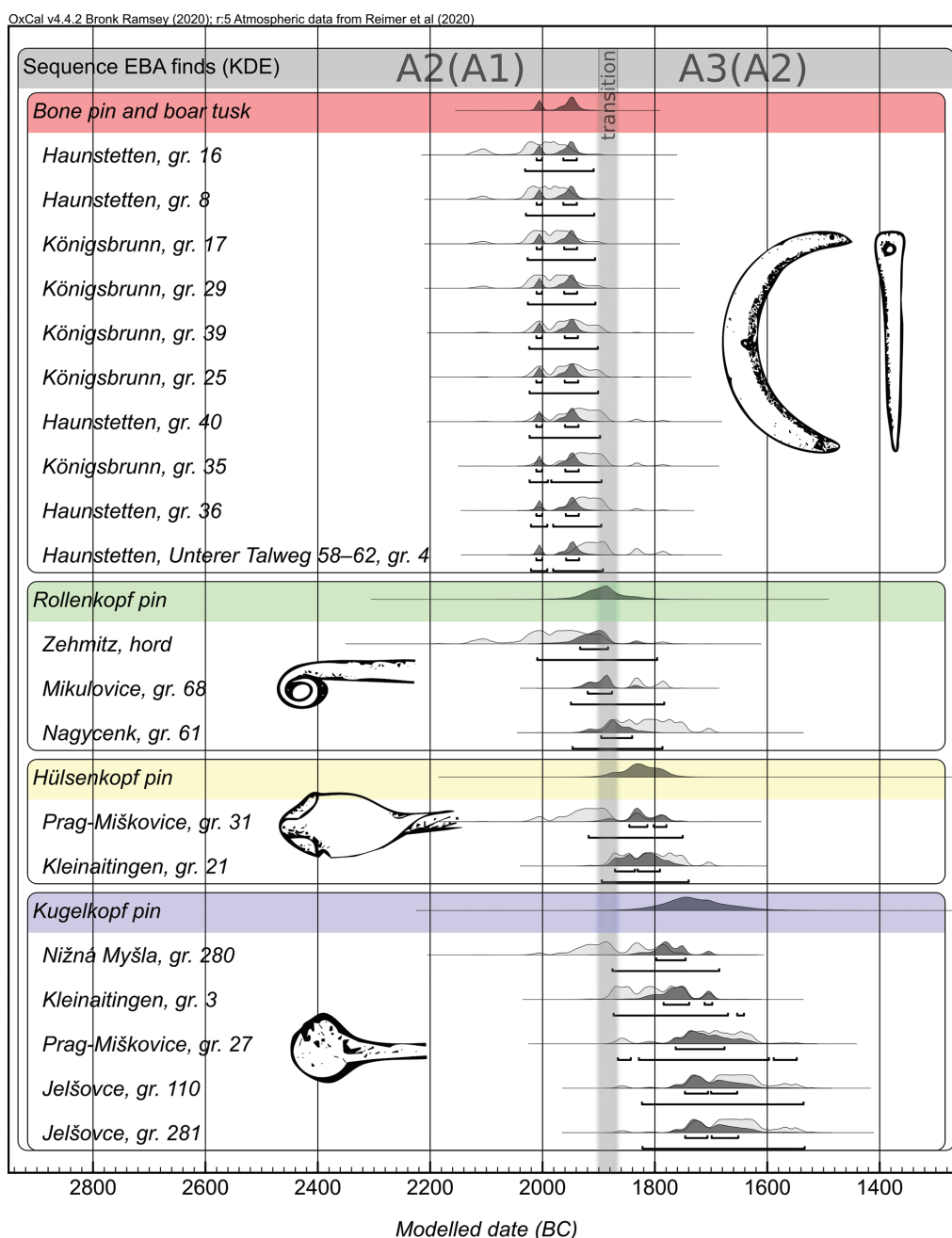


Fig. 6. Plot of dates from Central European sites with pin and bone finds analogous to those from Nižná Myšľa cemetery.

was applied (Krištuf, Švejcár 2015). Kernel Density Estimation (hereinafter KDE) and Nearest Neighbour Distance (hereinafter NND) analysis were used to identify these burial groups. In the case of KDE, the radius of analysis was arbitrarily assumed to be 5m (Fig. 7).

The KDE results revealed that the eastern part of the cemetery showed a much greater dispersion of the graves. Only one concentration of graves, located in the north-west of the area, was recorded there. However, in the eastern zone there are five concentrations, sometimes with a linear course, the largest of which is located near the eastern edge. The distances between the centres of all locations were then calculated based on the centroid of each burial. In the case of the NM cemetery, the average closest distance was approximately 2.9m. All points were then connected at a distance of 3m (Fig. 8). It is assumed that families in the Neolithic and Bronze Age were rather small, consisting of four to six members (Neustupný 1983). Taking the above into account, the described systems indicate potential family lineages. Smaller clusters of two or three graves could reflect a different kind of family lineage. Groups of seven or more burials should be interpreted as reflecting other categories of social relationships and ties. In the further analysis, the obtained results were correlated with information on the sex and age of the buried people.

The aforementioned typological findings by Nováček assume full reflection of the three horizons of relative chronology in the space of the cemetery. Statistical analysis of all grave goods and a separate

analysis of female burials furnished with pins made it possible to propose a more complex process of the formation of the funeral space in NM. First of all, it is necessary to point to another specificity of the staged history of the place where the deceased are buried. The area documented as a result of archaeological research did not immediately function as a funeral space. First it covered the westernmost part of the area. Burials were located there in a relatively short period of about 100 years (2000–1900 cal BC). In this part of the cemetery, relatives (two or three individuals – 26 groupings) and family lineages (four to six individuals – 18 groupings) clearly dominated. Groupings of more than seven individuals per series occurred only in seven cases (Fig. 8). The results of the NND also indicate that in the linear systems representing four to six graves only 6% had individuals of one sex, with 20% having two to three individuals. However, with regard to the division into older individuals (*adultus/maturus*) and younger (*infans/iuvenis*), burials from one age category account for only about 20% of the total.

In the light of statistical analysis, the central part of the cemetery is not characterized by the presence of burials with a significantly different set of grave goods (characterized as ‘transition period’ A1/A2). The grave goods placed in these burials are instead related to the next, younger stage of burying the deceased at the site, covering the period around 1900–1650 cal BC. During this period, the creation of a new spatial arrangement of the younger part of the cemetery begins. The graves are again located in linear systems. The individual groups of burials in lines, however, remained in general spatial agreement with the older arrangements, probably marked on the surface.

In the eastern, younger part of the site the ratio of the different types of lineages become more equal. Small systems of two to three graves predominate, with a total of 17. The number of family lineages is significantly reduced and amounts to 11, while there are nearly half as many more long groupings, often including much more than seven individuals in a sequence (12 groupings) (Fig. 8). Regarding sex, in groupings of

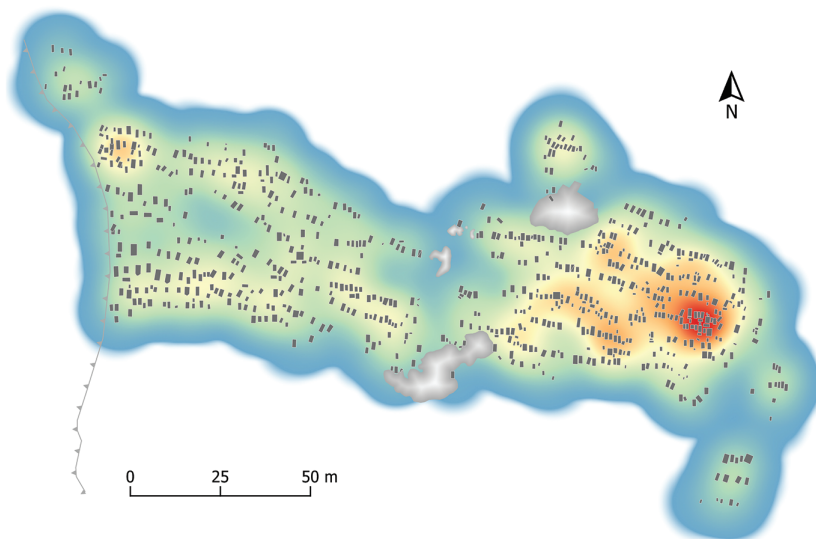


Fig. 7. Nižná Myšľa. Kernel Density Estimation results of grave locations within the cemetery.

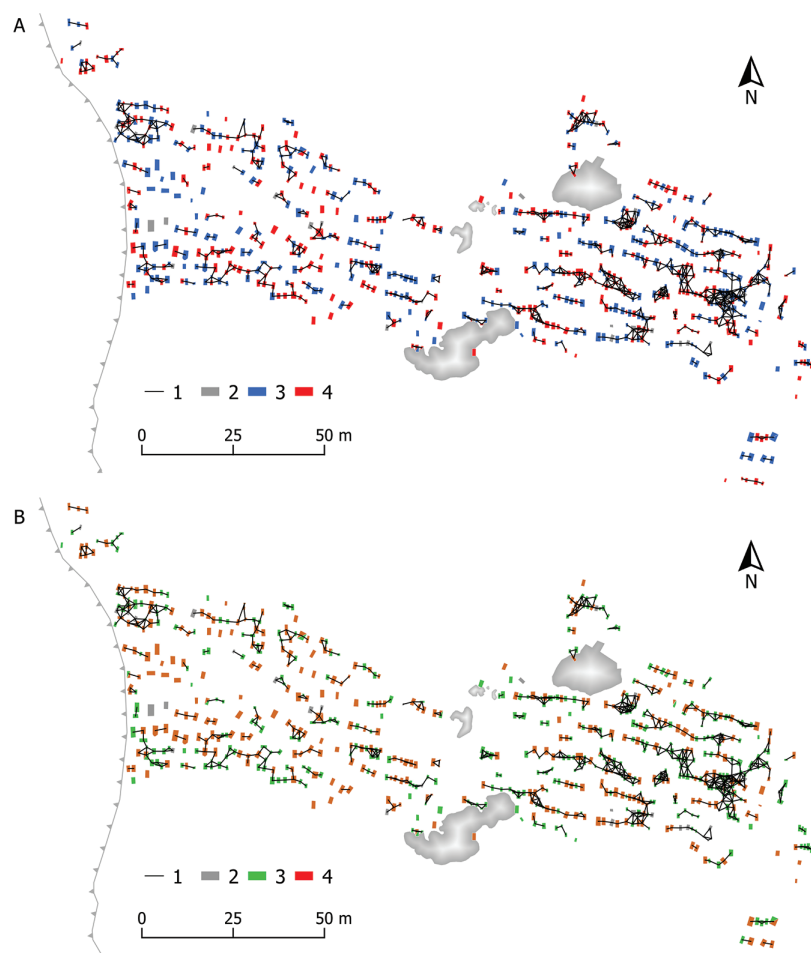


Fig. 8. Nižná Myšľa. Nearest Neighbour Analysis results of grave locations with regard to (A) sex and (B) age of deceased: A links up to 3m distance; 2 empty graves; 3 male burials; 4 female burials. B links up to 3m distance; 2 empty graves; 3 infans/juvenis; 4 adultus/maturus.

two or three individuals 35% of them were same-sex. In family lineages, groupings with one sex accounted for 18% of the total.

Status of female burials

The issue of the Bronze Age fortified settlements' societies has been presented for many decades in a very specific way. It is discussed primarily in the context of hypothetical long-distance relations between Central Europe and the Aegean zone (Vladár 1973; Kristiansen, Larsson 2005; Przybyła 2016; cf. Jaeger 2014; 2017; Kienlin 2015), or as evidence of the intensification of warfare. In both cases, the key role is assigned to the figure of a male warrior. With regard to Central Europe, the idealized image of a Bronze Age warrior was developed largely as a parallel of figures known from sources related primarily to the Early Mycenaean culture. This mechanism is well presented by the concept of warriors on the move (Kristiansen 2004; Kristiansen, Larsson

2005; 2007). As reconstructed by Kristian Kristiansen, the dense network of exchange and trade that surrounded Bronze Age Europe (and existed even beyond the borders of the continent) was to lead to the creation of a specific model of societies in which a belligerent aristocracy played a leading role (Kristiansen 1999).

In Kristiansen's view, its representatives were the organizers and beneficiaries of long-distance contacts, in fact being their fullest 'product'. Warriorhood understood and described not only as a phenomenon of a military nature, but above all as a social phenomenon (Kristiansen 1999:181), was to appear in a fairly short time as an element common to the Mycenaean culture, the Carpathian Basin and the Nordic zone societies (Kristiansen, Larsson 2007; Vandkilde 2014). The starting point for the phenomenon of the elite aristocratic warrior was to be "(...) empires and palace cultures of the Near East and the Eastern Mediter-

ranean (...)" (Kristiansen 1999:177). In the thus outlined history of the development of the Bronze Age societies, little space was left for consideration of the status and role of women in the promotion and development of specific cultural patterns and behaviours. The case studies presented in recent years (Stockhammer et al. 2015; Massy et al. 2020) show that in addition to the rarely questioned model of the spread of innovation by mobile male warriors, scenarios in which women played the main role should also be considered. The above-described appearance of a new type of personal ornaments – a pin of the Kugelkopf and Hülsenkopf types – in female burials of the younger phase of the NM cemetery, is in our opinion likely evidence of exogamy. Taking into account the presence of prestigious and non-local raw materials, such as gold, faience and amber, as well as a larger amount of bronze (or copper and tin), it is possible to point to a potentially multidirectional exchange of ideas, goods and people. As a result, innovations (e.g., new elements of

clothes and new ornaments) appeared in NM not only thanks to *warriors on the move*, but also through women. In this context, we treat women not as an object of exchange, but as an equal subject (next to men) of particular activities, endowed with agency. This is evidenced by the imperceptible difference in the richness of the burials of both sexes and large number of female burials equipped with unique items and those made of gold, amber and faience.

In the NM cemetery, female graves constitute 49% (387) of all burials for which the sex of the deceased was determined (Nováček 2017:24). However, not all age categories were present in this collection. The burials of children (*infans I* and *infans II*, 129 burials) as well as adult women (*adultus*, 134 burials) and adolescents (*juvenis*, 87 burials) predominated. Absolute exceptions are graves in which mature people were buried (*maturus*, 5 burials). Moreover, there is a complete lack of burials of elderly people (*senilis*). The age structure of women buried in the NM cemetery does not differ significantly from that of men. In the case of the latter, attention is drawn to the dominance of adult burials (*adultus*, 150 burials), the almost complete lack of burials of mature people (two burials) and again the absence of the deceased in old age. At the same time, it should be noted that there are no statistically significant differences in the quality of equipment between representatives of specific age groups of the deceased of both sexes. In the light of this information, it seems reasonable to conclude that both women and men had the right to the same burial rites. These rights were obtained at birth, but probably lost in adulthood³. The statistical analysis revealed the existence of certain permanent patterns of equipping the deceased, both in the older and younger section of the cemetery. Within these sets there were mainly the following types of ceramic vessels:

- women BA2 (A1): PB cup, DC jug;
- men BA2 (A1): PB cup;
- women BA3 (A2): PA cup, DA and DB jugs;
- men BA3 (A2): DA and DB jugs, MA and MB2 bowls, PA cup, HB pot.

It is worth noting that the burials equipped with weapons (daggers) were not accompanied by other items that could emphasize the special status of men. The vast majority of items made of non-local

or rare raw materials, such as amber and gold, were put together as equipment for female burials.

Discussion

Due to the scale of research and the number of discovered burials, the NM cemetery undoubtedly offers unique analytical possibilities in the framework of Early Bronze Age studies in Central Europe. The combination of statistical methods and contextual data on the absolute chronology of selected finds made it possible to create a spatial-temporal model of the formation and development of the cemetery in question. Its area is divided into two parts which, in the light of the results of the analysis of grave goods, reflect the chronological sequence. Radiocarbon dating of particular finds of selected types of bronze pins and ornaments made of boar tusks from Central Europe allow us to define the stages of the cemetery's functioning as: older (A1), lasting approx. 2100/2000–1900 cal BC, and younger (A2), lasting approx. 1900–1650/1550 cal BC (Brunner et al. 2020). The chronological sequence is reflected in the structure of the separate phases of the cemetery.

The analytical procedures applied resulted in a number of significant conclusions regarding the spatial and temporal development of the cemetery:

- Differences were identified in the arrangement of the funeral space and the choice of the location of graves in individual parts of the cemetery; in the older, western part (A1) of the cemetery, small linear layouts of graves dominate, interpreted as relatives or family lineages. On the other hand, in the eastern part, the younger one (A2), there is a notable predominance of long linear layouts, often exceeding seven burials. The graves in the western part are more scattered, in the eastern part they are more aggregated; this fact can be interpreted as an increase in the number of burials (and thus population growth) within a relatively small available space.
- A clear quantitative and qualitative differentiation of grave goods was observed in both chronological periods. During the A1 period, there was a limited set of objects. In turn, the A2 period was characterized by a more extensive range of objects constituting the burial items. In the A1 period, some of the grave goods suggest a connection with strictly de-

³ We treat a small number of burials of mature women and men (*maturus*) as those which, from the point of view of the existing ritual rules, were related to a group of adults (*adultus*). The age limit separating both categories is conventional and is the assumption of modern science. As a consequence, we accept the thesis according to which people in mature and old age (*maturus* and *senilis*) were not buried in the form documented in the cemetery.

fined economic activities and crafts – different in the case of the female burials (awls and needles = weaving, leather/fur processing) and men (arrowheads, ornaments made of boar tusks = hunting); this observation does not apply to burials from the younger part of the cemetery (A2).

● In the light of the above observations, it can be concluded that the analysed collection of sources reflects a number of changes that the local community underwent in a period lasting about three centuries. These changes, visible in the ways of creating a funeral space, suggest transformations of existing social institutions. It seems that family/kinship ties were initially the basic and at the same time the main factor creating the relations. Gradually, more complex structures emerged, probably related to the satisfaction of new common needs, of an undefined nature (religious, social or political). While we consider the importance of family/kinship ties to be a local tradition, we perceive the complication of community structure (reflected in a new, more extensive, linear burial system) as a likely result of an influx of a new population group. Their material contribution is probably the more present amber ornaments and the new, non-local types of bronze pins of the Hülsenkopf and Kugelkopf types, predominant in female burials. These are the forms that dominate in the analysed period of the Early Bronze Age in the area of today's southern Germany, Czechia, Moravia and Austria, *i.e.* in the region constituting the core of the settlement of the Únětice culture (Fig. 9) (Bartelheim 1998; David-Elbiali 2000; Krenn-Lieb 2011). The probable appearance of new population groups ('Fremdefrauen?', Jockenhövel 1991) can be associated with an increase in the population size, reflected in the proportion of the number of burials to the duration of

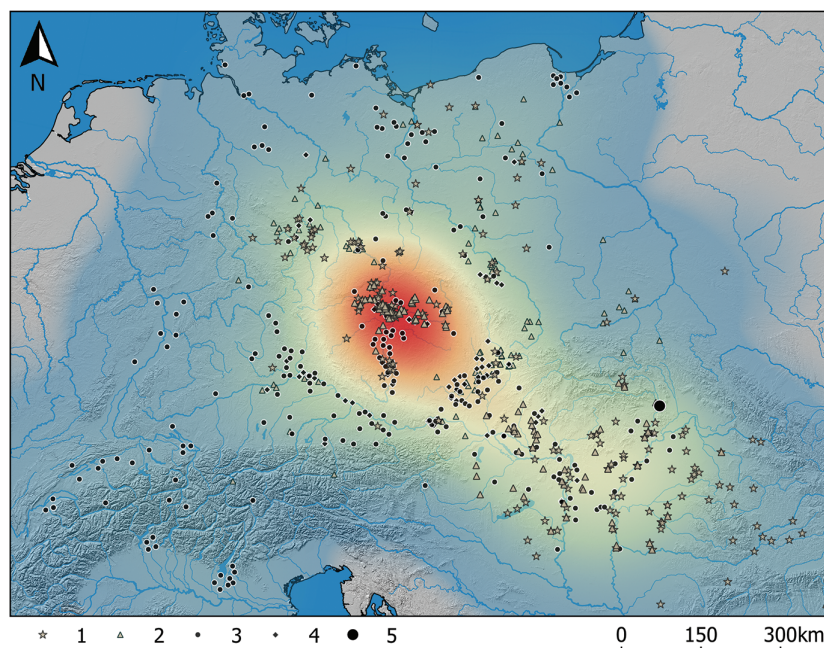


Fig. 9. Distribution and Kernel Density Estimation results of selected artefacts in Central Europe: 1 gold finds; 2 amber finds; 3 Kugelkopf pins; 4 Hülsenkopf pins; 5 location of Nižná Myšľa cemetery.

the funeral space: A1 – 490 graves over a period of around 200 years, A2 – 302 graves over a period of around 100 years (Novaček 2017.23).

The results presented above should be treated as an attempt to recreate the changes taking place in a specific local community of the Early Bronze Age, based solely on the sources from the cemetery. The potential of these sources, even taking into account their large number, cannot be fully used at present. As the authors, we are aware that some of the presented hypotheses can be verified and completed only with the use of long series of ^{14}C dating and with the use of new methods, with DNA and isotope analyses at the forefront.

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