

M. Burghardt

SOCIAL STRATIFICATION OF FOREST-STEPPE POPULATION OF THE LEFT-BANK OF THE DNEPERLAND DURING THE CLASSICAL SCYTHIA (the 2nd half of 6th—4th/3rd century BC)

The article discusses the issue regarding the reconstruction of social structure of the Scythian populations from the forest-steppe zone of the left-bank Dnieperland, in the period between the 2nd half of 6th—4th/3rd century BC, on the basis of funeral materials. As a result of the analysis of the most important elements of burial rites implemented by the discussed population groups, and based on records of ancient authors (The Histories by Herodotus), it has been established that the most valuable sources are the size and complexity of the funerary structure and covering embankment as well as quantitative and qualitative diversity of included inventory. The classification developed on the basis of 247 burials, by means of statistical inference methods, has led to the separation of several classes of graves that can be combined with different social strata. This distinguished classes were sorted according to the social hierarchy, that is in such a way that the transition to the subsequent classes is connected with the decreased amount of work used to build the burial construction and the burial mound, and the grave goods becoming «poorer».

Keywords: funeral rites, social stratification, Forest-steppe Dnieper, Scythians.

In the opinion of many archaeologists, especially those following the ideas of the processual archaeology, funerary rites constitute one of the most basic sources for reconstruction of various social structures of prehistoric societies (Brown 1995; Härke 1997; 2000). Very similar approach is often accepted by many Eastern-European archaeologists (Васютин, Крадин, Тишкин 2005 for further reading), who specialise in studying ancient communities analysed in this paper, together with many others. Between numerous works devoted to the social stratification of the inhabitants of the forest steppe areas of Eastern Europe in the Scythian period, I would underline publications that employed statistical methods,

for example graph analytics, correlation analysis, cluster analysis, or principal component analysis. Typically, the above-mentioned tools are used to build a classification of graves according to such criteria as assessment of work effort put into construction of a grave and erecting a burial mound, as well as quantity and quality of grave goods. Studies based on such premises were written for almost every regional group of the Scythian period in the forest-steppe zone of the left-bank Dnieperland (Sula River basin — Шульженко 1987, с. 143—144; Vorskla and Psel River basin — Бойко 2017; Donets River basin — Буйнов, Окатенко 2013; Буйнов, Гречко 2015), with the exception of finds from the North Dnieper Terrace Lowland Region. Sadly, a systematic monograph of the whole forest-steppe area is yet to be published. We need to keep in mind that many of the above-cited publications use relatively limited source database, which may result in not always reliable outcome of the statistical analysis. Moreover, while the researchers generally agree when it comes to the criteria of classifying the graves, the methods used in each regional analysis show a rather high level of variability. In consequence, comparing results of such small-scale studies is not always possible.

The source database for this paper consists of 247 grave complexes from the forest-steppe zone of the left-bank Dnieperland (fig. 1), dated between the 2nd half 6th—4th/3rd century BC. For all of the analysed features it was possible to gather full information concerning the nature of the burial, type and dimensions of the grave construction, size of the kurgan, elements of the grave inventory, number of the deceased as well as their gender. In case of the latter aspect, very limited number of professional anthropological

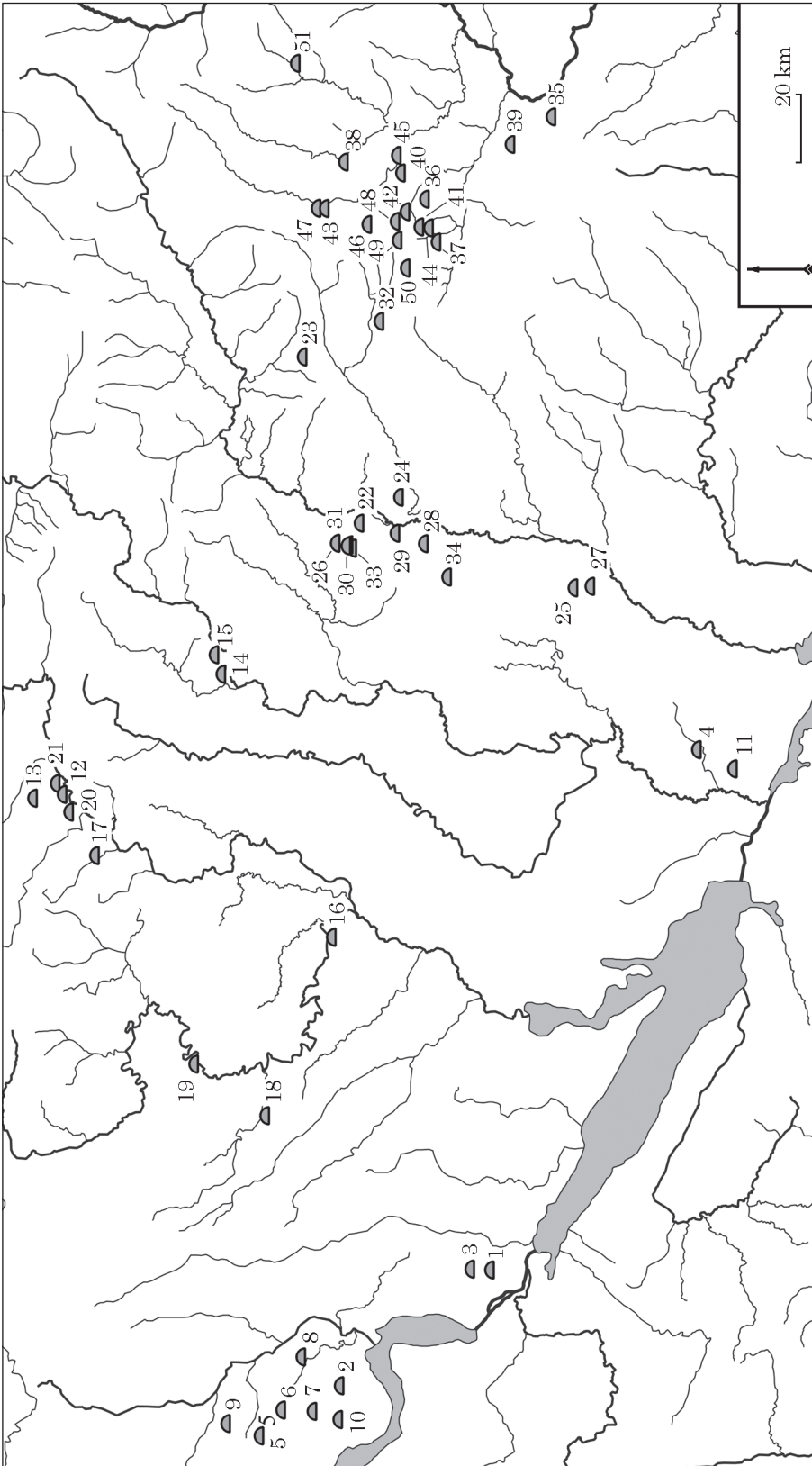


Fig. 1. The location map Scythian burial complexes from the forest-steppe zone of the left-bank Dnieperland considered in the analyses: 1 — Bubnovaia Slobodka (BubS); 2 — Erkovtsy (Erk); 3 — Gladkovshchina (Glad); 4 — Gorobany (Gorob); 5 — Ivankov (Ivanko); 6 — Liubartsy (Lubo); 7 — Mirmoe (Mir); 8 — Podole (Pod); 9 — Senkovka (Senk); 10 — Staroe (Star); 11 — Voloshino, kurgan group III (Vol3); 12 — Aksutintsy (Aks); Staikin Verkh. AksSV); 13 — Basovka (Bas); 14 — Brovari (Brov); 15 — Dudchynsi (Dud); 16 — Khittsy (Hit); 17 — Iarmolintsy (Jar); 18 — Kriachkovka (Kra); 19 — Kuleshovka (Kul); 20 — Plainshchi (Planiv); 21 — Volkovtsy (Volk); 22 — Belsk, kurgan groups A—B (BelA/B); 23 — Kupevakhva (Kupl); 24 — Likhachevka (Lich; Opishlianka — Opiszl, Vitova Mogila (VitM); 25 — Machukhi (Macz; Taranov Iar. TarJ); 26 — Marchenki (Marcz); 27 — Malii Trostianets (MTrost); 28 — Olefirshchina (Olef); 29 — Opishnoe (Opisz); 30 — Osniagi (Osn); 31 — Pereshchepino (Per); 32 — Pokrovskii (Pokr); 33 — Skorobor (Skor); 34 — Vasilivka (Vasil); 35 — Velyka Homolsha (BolG); 36 — Bystre (Byst); 37 — Cheremushna (Czer); 38 — Derhachi (Dereg); 39 — Hryshkivka (Grisz); 40 — Korotych (Koto); 41 — Kruhlik (Krugl); 42 — Liubotyn (Lub; kurgan groups: Solomakhivka — S; verkhnohiiivska — VG; nyzhnohiiivska — NG; sovarkomovska — Sov); 43 — Mala Rohozianka (MalR); 44 — Mogilki (Mogil); 45 — PISOCHYN (Pes); 46 — Protopivka (Proto); 47 — Ridnyi Krai (RodK); 48 — Staryi Merchuk, kurgan groups II—IV (StMer2-4); 49 — Tetsiushyne (Tetju); 50 — Vesele (Vesel); 51 — Vesele (Vesel) — Abbreviations of the site names are in brackets (see fig. 2—3, appendix 1—2)

assessments resulted in adopting methods of classification based on grave goods (Burghardt 2016, p. 204—205).

One of the most important steps in reconstructing the social structure of the studied population was determining which elements of the mortuary practices could be regarded as a reliable source for social analysis (Ciesielska 2009, p. 45). It is generally accepted that the main indicators of social position of a deceased individual should be the character of the burial and its localization. The starting point for examining these aspects of the funerary rite is the concept of effort devoted by mourners in order to build a grave structure and organize funeral ceremonies (Tainter 1975; 1978; Peebles, Kus 1977). According to this model, the higher social position of the deceased, the more energy was wasted for the burial. The adequacy of the above-described concept for the study of social differentiation of the Scythian communities (societies of the «Scythian» cultural model) was indirectly confirmed by Herodotus. The historian wrote that following the Scythian tradition, a king should be interred in an especially large grave chamber, covered by a kurgan of a great height (Herodotus, *The Histories* IV, 71). The important role of the above-mentioned criteria for deducing a social position of a deceased was indicated in the studies of other Scythian groups that were contemporary to the analysed communities (Болтрик 2004; Ромашко, Скорый 2009, с. 90—95). We need to keep in mind, however, that using the size factor only while assessing the amount of work devoted to constructing a funerary complex may be a little misleading. A great example of this issue could be the difficulty in determining a social position of a deceased on the basis of dimensions of a mound covering the grave. As we know, due to various factors, the height of a kurgan measured by modern scholars often differs from its estimated original size (Rowńska et al. 2010, p. 15—17; Sudnik-Wójcikowska, Moysiienko 2012, p. 117—121). Moreover, many smaller mounds, representing the most common category of kurgans built by the analysed communities, frequently are nowadays almost completely destroyed by ploughing (Ильинская 1968, с. 9). Typically, graves buried under the mounds were subjected to a less serious damage than the kurgans. Thus, the dimensions of a grave structure seem to be a more reliable indicator of a social rank of the deceased. Another important factor in assessing the loss of energy (effort) used in order to build a grave is the complexity of burial structures. It is generally accepted that people interred inside more elaborate grave complexes (wooden tombs) most likely had a higher social status than individuals buried in simple grave constructions (Гречко, Шелехань 2012, с. 92).

Analysing the criteria used in reconstructing the social differentiation of ancient communities, including the people inhabiting the forest-steppe

(Бабенко 2005, с. 172—183; Буйнов, Окатенко 2013, с. 128; Burghardt 2016) and steppe (Rolle 1979, p. 33n; Бунятян 1985, с. 91—101) areas in the Scythian period, we cannot overlook the characteristics of artefacts buried alongside the deceased. The quantity and quality of grave goods (wealth), as well as the presence of certain functional classes of finds (especially artefacts regarded as symbols of wealth and social prestige), could be an important factor in determining not only the rank (social position) and status of the deceased, but also could shed some light into the social identity of the individual linked with their biological conditions (gender, age) and function in society (Gryzińska-Sawicka 2014, p. 51). Consistent with these observations is the description of the burial of a Scythian king written by Herodotus. As noted by the historian, a dead ruler should be buried alongside his mistresses, servants, horses and firstlings of all his other possessions, in addition to selected categories of artefacts, including golden cups (for they use neither silver nor brass; *The Histories* IV, 71). We need to keep in mind, however, that in the case of the Scythian communities (societies of the «Scythian» cultural model) an adequate estimation of a social rank of a deceased individual based on analysis of grave goods is often quite problematic as inventories of many burial complexes are incomplete (robbed). As a result, sets of artefacts identified within graves may lack important classes of goods. For that reason, in assessing a social position of a deceased we should analyse not only the number of finds accompanying the individual, but also the presence of certain categories of artefacts.

In *The Histories* of Herodotus we could find a mention of another detail proved to be very useful in estimating of a social rank of a deceased Scythian (or the member of one of other related tribes) — the presence of accompanying human and horse burials. This element of the funerary rite of the nomads, linked to the phenomenon of so-called «accompanying death», is regarded as one of the best indicators of the high social class of the deceased (Ильинская, Тереножкин 1983, с. 121; Бабенко 2005, с. 175—178; Ромашко, Скорый 2009, с. 89, 95—98). Analysing the description of the funeral of a member of the Scythian's elite written by Herodotus, it seems that both people and animals sacrificed during the ceremony were treated in a very similar manner to artefacts deposited in the grave, that is as various goods (servants, riding and draught horses) remaining at the king's disposal in the afterlife (Testart 2004, p. 20—28).

Using archaeological methods, we can uncover remains of Scythian funeral feasts (triznas), often included in catalogues of mortuary practices potentially bearing a deeper social meaning. In the opinion of many scholars (Testart 2004, p. 30—33) Scythian trizna ceremonies may have involved distributing belongings of the deceased

among the invited guests. An example of this type of behaviour would be ritual killing and consumption of animals taken from the decedent's herds. Consequently, the wealthier the deceased individual was, the more animals should have been sacrificed during the funeral feast. Apart from post-consumption animal bone assemblages, among the remains of Scythian triznas researchers often identify various artefacts, such as fragments of handmade vessels and Greek amphoras, as well as different objects most likely brought by the participants of the funeral ceremony (votive offerings). In addition to the above-described elements of funerary rites of Scythians (or other related tribes), the analysis presented in this paper includes such aspects of burial ceremonies as treatment of the decedent's body or presence / absence of traces of rituals using fire.

Based on the selected aspects of Scythian mortuary practices discussed above, I prepared a set of 73 characteristics identified within the studied group of 247 graves. The criteria include a wide range of factors deemed as potential indicators of a social rank of the deceased. Reviewing the list of categories, we should keep in mind two important caveats. First of all, the analysed characteristics are quite mixed — next to qualitative factors we could find many quantitative parameters, such as the size of burial mounds and grave constructions. In effort to standardize the questionnaire, the latter factors have been transformed into the former. Secondly, the characteristics included in the set were chosen on the basis of their recurrence — only factors identified in at least three grave complexes were analysed. The selected criteria are as follows.

- Character of the burial: 1 — flat grave; 2 — secondary / peripheral burial; 3 — accompanying burial located outside of grave pit containing the main burial.

- Size of kurgan barrows and grave constructions¹: 4 — mounds of a diameter up to 24 m, height up to 1.5 m, and volume up to 100 m³;

1. All of the characteristics referring to size were based on the calculated average size of kurgan mounds (described by their diameter, weight, and volume), as well as grave constructions located beneath (or dug into) them (described by area of grave pit / chamber as well as area and depth of whole grave construction). As a result, three main size groups were distinguished: «minimal» (smaller than or equal to the average); «large» (average to twice bigger than the average) and «very large» (at least twice the average). The above-mentioned size groups were subsequently verified by charts showing dispersion of variables describing the analysed groups (height of the mound — height of the mound compared to its diameter; area of the grave construction — area of the grave construction compared to area of the grave pit / chamber; depth of the grave construction — depth of the grave construction compared to diameter and volume of the mound and area of the grave construction).

- 5 — mounds of a diameter between 24 and 35 m, height 1.5—3.5 m, and volume 100—700 m³;
- 6 — mounds of a diameter higher than 35 m, height greater than 3.5 m, and volume larger than 700 m³;
- 7 — grave construction of an area up to 9 m²;
- 8 — grave construction of an area between 9 and 17.5 m²;
- 9 — grave construction of an area larger than 17.5 m²;
- 10 — burial on the original ground level of the area under the mound;
- 11 — grave construction of a depth up to 2 m;
- 12 — grave construction of a depth between 2 and 3.2 m;
- 13 — grave construction of a depth greater than 3.2 m.

- Secondary structural elements within the area of a mound and the grave construction: 14 — a ditch / dyke surrounding the mound; 15 — a wooden structure within the mound; 16 — dromos, 17 — additional poles supporting the wooden cover of the grave construction; 18 — a ditch surrounding the grave construction; 19 — wooden facing of the walls; 20 — wooden floor / platform; 21 — bedding made from organic materials.

- 22 — inhumation.

- Elements of trizna: 23 — post-consumption remains (animal bones; fragments of handmade and imported vessels, including Greek amphoras); 24 — ash, charcoals, traces of fire; 25 — votive offerings.

- Accompanying burials: 26 — horses; 27 — people.

- 28 — traces of fire.

- Functional groups of grave goods: 29 — knife; 30 — spindle / spindle whorl; 32 — whetstone; 33 — ferrule; 34 — awl; 35 — other tools and items for everyday use; 36 — arrow; 37 — spear; 38 — javelin; 39 — cutting / blunt weapon; 40 — armour; 41 — combat belt / shield; 42 — imported protective equipment; 43 — ceremonial armour / weapons, elements of horse harness and equipment of a warrior; 44 — bit, cheekpiece; 45 — decorative bridle fitting; 46 — decorative plate to horse harness; 47 — other elements of horse harness; 48 — ring; 49 — torque; 50 — metal bracelet; 51 — 1—3 beads; 52 — set of beads; 53 — pin; 54 — earring; 55 — golden / electrum jewellery; 56 — stone plate / platter; 57 — sulphur, realgar; 58 — dyes; 59 — mirror; 60 — silver, golden and electrum applique of clothing and headdress; 61 — handmade vessel; 62 — Greek amphora; 63 — black-glazed vessel; 64 — wheelmade vessel; 65 — bronze cauldron; 66 — imported bronze vessel; 67 — silver vessel; 68 — wooden vessel; 69 — wooden vessel with golden appliques; 70 — sacrificial food; 71 — knife with sacrificial food; 72 — stone spheroid; 73 — others.

One of the most fundamental postulates of social archaeology is the hypothesis that the variety of ancient grave complexes might reflect social structure of past populations. According to this theory, individuals belonging to various social groups might have buried their dead in different ways, specific for every group (O'Shea 1984,

p. 33—34). In the case of Scythians (and other societies of the «Scythian» cultural model), the existence of various funerary customs sanctioned by social group of the deceased (Scythian kings and members of their families, as well as ordinary Scythians) was confirmed by The Histories of Herodotus (IV, 73). Hence, the main goal of this study was to identify sets of grave complexes that could be linked to groups of people occupying a specific rank in the social hierarchy. According to the above-described principles, the selected set of 247 graves has been analysed. In order to systematize the data, the cluster analysis was implemented. The distance between clusters was assessed using the Ward's method (Dwight 1989, p. 44—47; Renfrew, Bahn 2002, p. 189; Baxter 2015, p. 148—168). The analysis was performed separately for graves with male and female burials, regardless of the total number of individuals interred in the complex. In addition, each group was supplemented by graves containing children or adolescents of an undetermined sex.

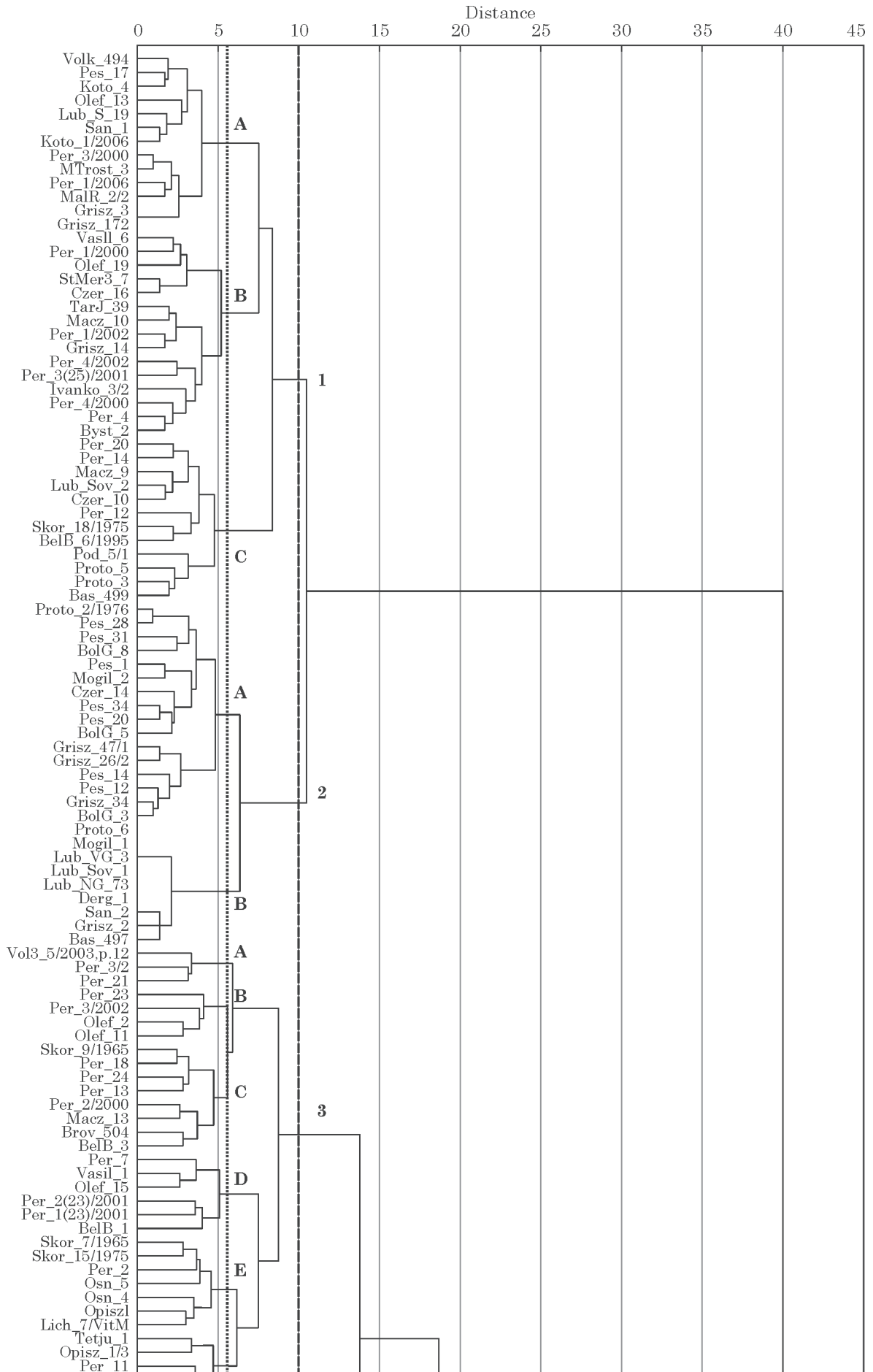
Dividing the analysed set of graves into two smaller series resulted in making some necessary simplifications of the questionnaire developed for evaluation of the elements of the Scythian funerary rituals. First of all, while analysing the burials classified to one of the sexes, features typical for the opposite gender were excluded. Secondly, the criteria that did not meet the required recurrence threshold in each group were eliminated as well. The results of subsequent preliminary correspondence analysis of the both series of graves suggested that the sets of features should be reduced even further. The contingency tables of the variables showed that the criteria 1 and 3, as well as the graves they describe best, form a separate group apart from the main cluster of the studied complexes. Hence, these accompanying burials and flat graves were omitted from the main analysis. As a result, the final clustering was performed only on graves described by at least three factors other than those linked to the character of the burial. For male burials, a set of 69 criteria was obtained (nos. 2, 4—29, 31—47, 49, 51, 55, 60—71, 73, as well as two supplementary features: 74 — all personal ornaments except torques and 1—3 beads; 75 — finds typical for female graves), while female burials were examined using 50 features (nos. 2, 4—9, 11, 12/13, 14/15, 16—25, 27—30, 35—36, 37/38, 48, 50—64, 68, 70—73¹, as well as supplementary feature no. 76 — all metal vessels). In accordance to the

1. Factors no. 12—13, 14—15, 37—38, and 68—69 were combined to create a more broad, composite categories: 12—13 — grave constructions of a depth greater than 2 m; 14—15 — secondary structural elements within the mound; 37—38 — pole weapons; 68—69 — wooden vessels with or without golden appliques. In addition, factors no. 32 (whetstone) and 33 (ferrule) were incorporated into the category no. 35 — other tools and items for everyday use.

above-described changes, the number of analysed grave complexes was reduced as well. In addition to flat graves and accompanying burials that could not be characterized by at least three factors other than those linked to the character of the burial, accompanying female burials with no grave goods were excluded from the set of female graves. Thus, the final cluster analysis was performed on a group of 188 grave complexes with male burials (including two graves containing children of an undetermined sex) and 94 grave complexes with female burials (including two graves containing adolescents of an undetermined sex).

The detailed analysis of graves using the Ward's method led to identifying groups of complexes the most similar to each other in terms of selected features of the mortuary practices. For both dendrograms two cut-off points were selected. To start with, the first diagram (fig. 2) was cut at the height of 10 branch points, and the second one — between 7 and 8 branch points (fig. 3). As a result, both of analysed sets were divided into six clusters, marked with numbers from 1 to 6. Grave complexes assigned to the identified groups differ from one another mainly in the size of grave constructions and kurgan mounds. In addition, important factors affecting the division of the male burials are general complexity of the grave construction and the presence of certain grave goods. Further examination of the clusters led to separating them into smaller groups (sub-clusters). Features crucial in distinguishing the new sub-clusters are typically linked to the location of burial within the kurgan mound or the contents of the grave inventory. In the case of the female burials, general complexity of the grave construction was proved to be very useful as well. The most optimal cut-off point of the diagram showing the analysis of the female burials was established between 4 and 5 branch points, and for the male series between 5 and 6 branch points. As a result, the former set was divided into 19 groups (sub-clusters), while the latter — 23. The final sub-clusters were marked by letters from A to E—F added to the number of the main cluster to which they belong.

The analysis of the results of the clustering of sets of grave complexes led to several interesting observations. First of all, there is a correlation between the size of kurgan mounds as well as size and level of complexity of grave constructions, and quality and quantity of grave goods. Among the graves where this relationship could be observed, we can distinguish three groups. The first category (sub-clusters 1.A—B and 2.A—B of the male series, and 1.A—C of the female series) consists of graves of smaller size, covered by small mounds, and containing relatively «poor» sets of grave goods. On the opposite side of the diagram are graves of the largest and most complex constructions and equipped with especially diverse categories of offerings, belonging to sub-clusters



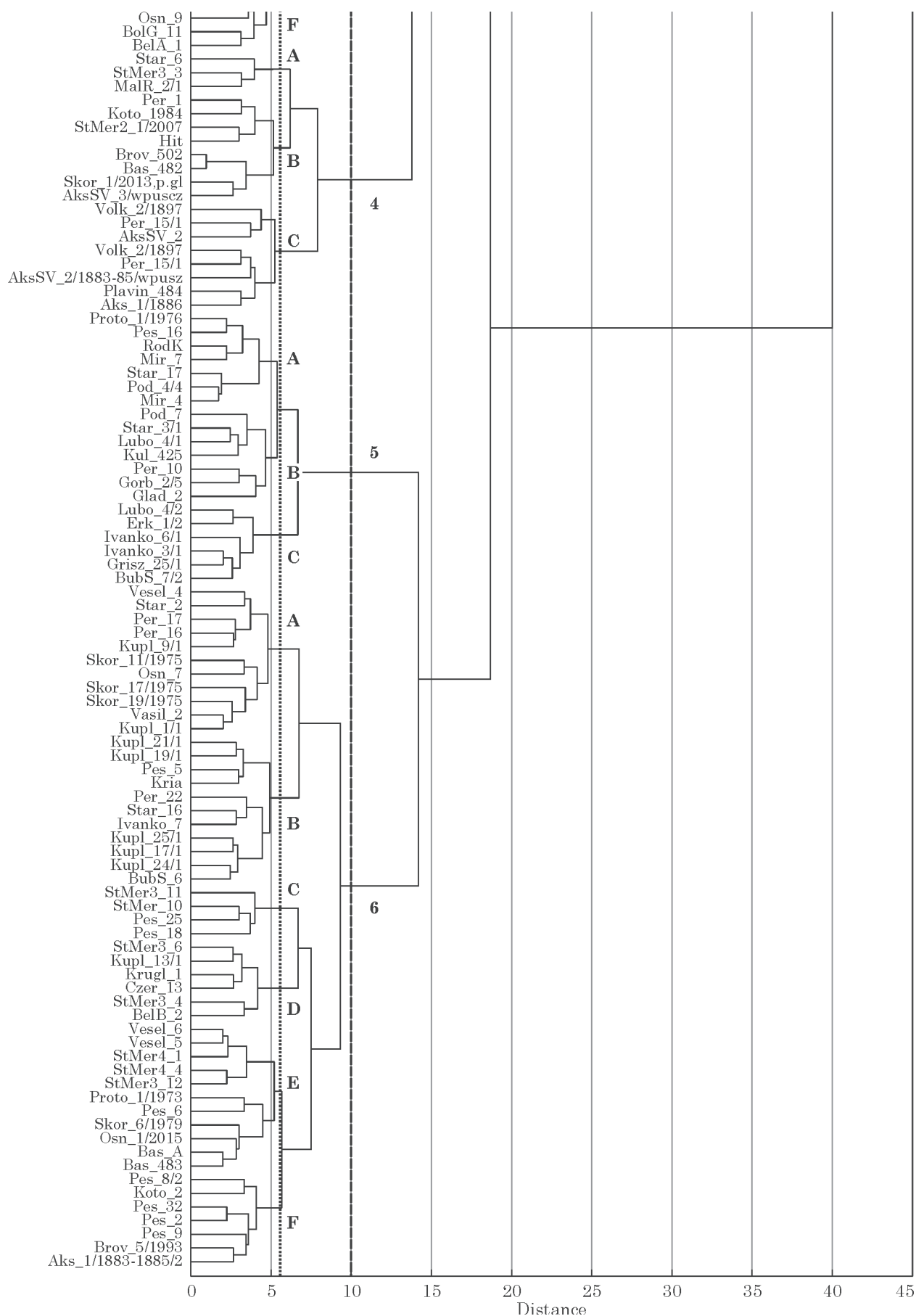
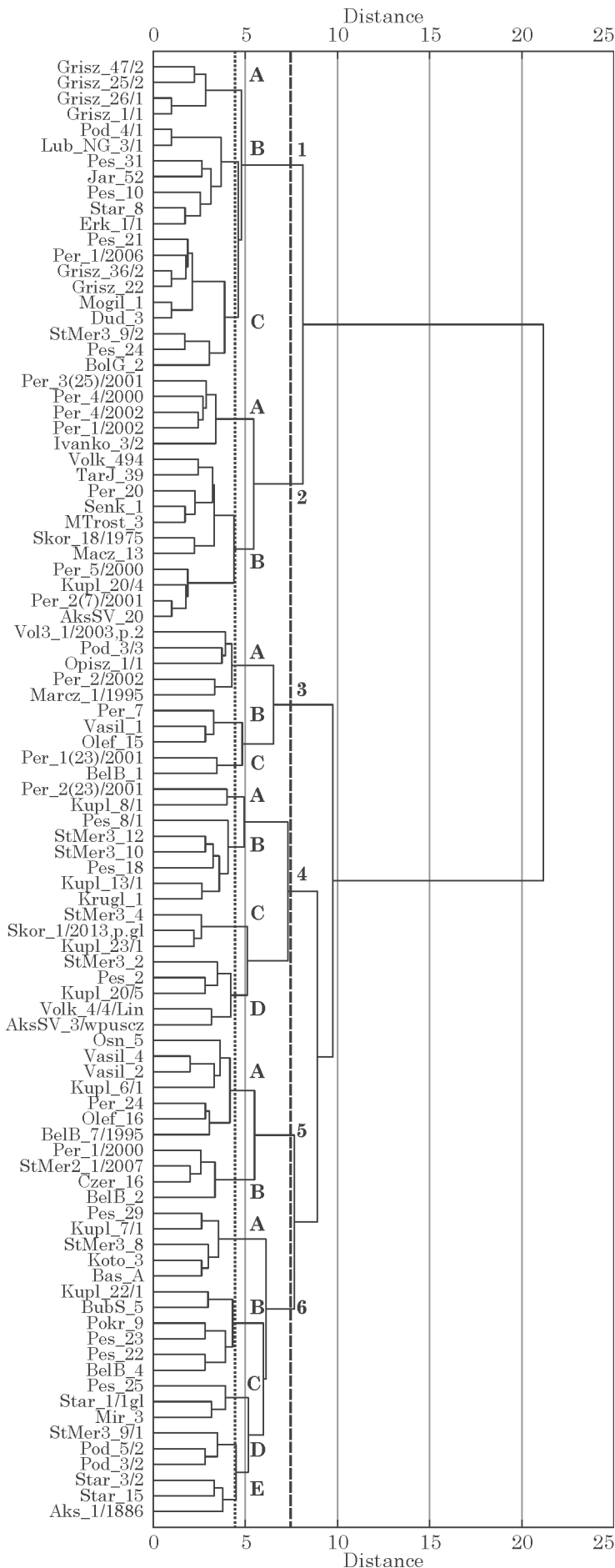


Fig. 2. Dendrogram presenting the results of cluster analysis by Euclidean distance of the male burials from the forest-steppe zone of the left-bank Dnieperland, dated between the 2nd half of the VI and IV/III century BC



3.D—E, 4.A and 4.C (male burials), and 3.B—C and 4.A—B (female burials). The remaining sub-clusters, located between of these two large groups of grave complexes, could be generally characterized by somewhat average size of grave construction and sets of grave goods. The examination of the latter aspect of the mortuary practices not only led to identifying substantial economic diversification of the studied populations, but also allowed for a preliminary assessment of the social functions of the deceased interred in graves belonging to certain clusters. In other words, the obtained clusters and sub-clusters show features useful for recognizing the social groups (economic or functional) represented by the decedents. In the same time, close similarities between some of the sub-clusters (not always belonging to the same main clusters), may indicate that the number of social classes manifested in the analysed sets of graves most likely was smaller than the total number of grave groups on the diagram. For that reason, I decided to prepare a more advanced systematization of the results of the clustering. The starting point for this part of the study was the definition of the social stratification used in sociology, explaining it as a manner of categorizing a society based on social positions arranged from the highest to the lowest (Brémond, Couet, Davie 2006, p. 167). Hence, the top of the hierarchical system of analysed graves belongs to complexes which construction must have required the highest effort, and containing exceptionally rich and diverse sets of grave goods. The subsequent classes could be characterized by decreasing energy expenditure, that is smaller and less complex grave structures, lower kurgan mounds, and «poorer» inventories. On the bottom of the hierarchy there is a group of graves of a very small size, with very little or no grave goods.

The comparative analysis of the identified grave clusters, aimed at ranking them in a hierarchical sequence, required additional standardization and estimations. For that purpose, I decided to apply the research method

Fig. 3. Dendrogram presenting the results of cluster analysis by Euclidean distance of the female from the forest-steppe zone of the left-bank Dnieperland, dated between the 2nd half of the VI and IV/III century BC

(cf. Burghardt 2017b, p. 124—125, fig. 3—10) using rankings of the most essential elements of the mortuary practices, such as energy expenditure devoted to constructing of the grave, as well as the quality and quantity of grave goods. In estimating the value of the first characteristics, I included variety of factors, such as the height, diameter and volume of the kurgan mound, the area of the grave construction and its part designed for the placing the body of the decedent, and the depth of the bottom of the grave pit. In addition, the «richness» of the grave inventory was measured using the NAT method (Number of Different Artefact Types — Hedeager 1978) and the so-called «splendour coefficient» (Hodson 1977). The systematization of the clusters of grave complexes obtained in the course of the statistical analysis was based on estimated «average» values of qualitative and quantitative parameters. Firstly, the quartile values were calculated from the data set of parameters describing the male and female graves, as well as obtained clusters of grave complexes. Subsequently, it was assumed that for all of the analysed groups, the average values should fall within the interquartile range, that is between upper and lower quartile. Additionally, in the classification of the results of the cluster analysis of graves, I took into account some qualitative factors, such as the degree of complexity of grave construction (type), additional constructional elements within the mound, as well as the presence of selected categories of grave goods. The latter class of items includes prestigious artefacts linked with the high-status individuals, luxurious objects of a mass character, and some items interpreted as attributes of certain social functions of the deceased. In the case of the male graves, among such grave goods, I would underline elements of horse harness and selected sets of weapons and armour, while the female graves were graded based on the quantity and types of personal ornaments, as well as toiletries and cult artefacts. Another analysed factor is the presence of accompanying horse and human burials.

In accordance with the above-mentioned criteria, the initial set of 23 clusters of male graves and 19 clusters of female graves were reduced to eight¹ and six larger classes, respectively. The new groups were subsequently systematized in conformity with the above-described definition of the social stratification, that is in such a way that when moving to each lower class (from I), the energy expenditure devoted to the construction of grave structures and mounds was reduced, and their inventories were less and less diversified in terms of quantity and quality.

The final stage of research of social structure of the obtained clusters of graves was verification of the proposed classification using the correspondence analysis (Burghardt 2017a, p. 153; 2017b,

p. 132—133, 138—139). This method, just like the cluster analysis, is one of the most common multivariate statistical techniques providing means to study relationships between variables and objects. Another advantage of the correspondence analysis is relatively easy to read graphical output (Zimmermann 1997, p. 9—15; Baxter 2015, p. 133—147). Correspondence analysis was performed separately for the male and female burials. In the both cases, I reused the data matrix originally prepared for the cluster analysis.

The results of the correspondence analysis of the series of male graves are shown in fig. 4, while fig. 5 presents the output for the female graves. The plots display the strength of correlation between variables symbolizing selected elements of the funerary rites and analysed clusters of graves. Based on the graphs, we could deduce that the results of the correspondence analysis generally converge with the output of the previous statistical techniques, as the clusters of grave complexes defined above (marked by the Roman numerals) form a more or less clear groups. In the case of the series of female graves, almost all of the complexes assigned to one of the clusters are concentrated within the same very distinctive associations of points. In the analysed set, there are only four exceptions from this rule. To start with, the burials from the kurgan 3 in Mirnoe and kurgan 15 from Staroe, originally classified to the class III, have been eventually re-assigned to the class IV according to the results of the correspondence analysis. The most important factor ruling for the change seems to be metric characteristics of the graves. Similarly, burial 1 from the kurgan 13 from Kupevakha was re-classified from the cluster III to IV based on the poorer grave equipment. Finally, the burial from the kurgan 5 found in the site Osniagi, initially assorted to the class IV, seems to be a better fit for the cluster II on the account of its size (large area of the grave construction with a relatively small depth). Comparing to the results of the correspondence analysis of the female graves, the groups visible on the plot prepared for the male series seem more ambiguous. As we can see on the graph, some of neighbouring classes of graves tend to blend together. To start with, grave complexes of the cluster IV occur in two smaller associations located on the both sides of the assemblages belonging to the classes III, V, and VI. In addition, few graves of the class IV could be found among the group of the cluster III inventories. Comparative analysis shows that the most important differences between the complexes of the classes III and IV are linked to the metric characteristics and type of grave constructions, while the similarities include size of kurgan mounds and sets of grave goods. It seems that the observed intertwining of class V and VI graves may have been an effect of their corresponding dimensions and construction elements despite quite divergent contents of

1. Including a transitional class II/III.

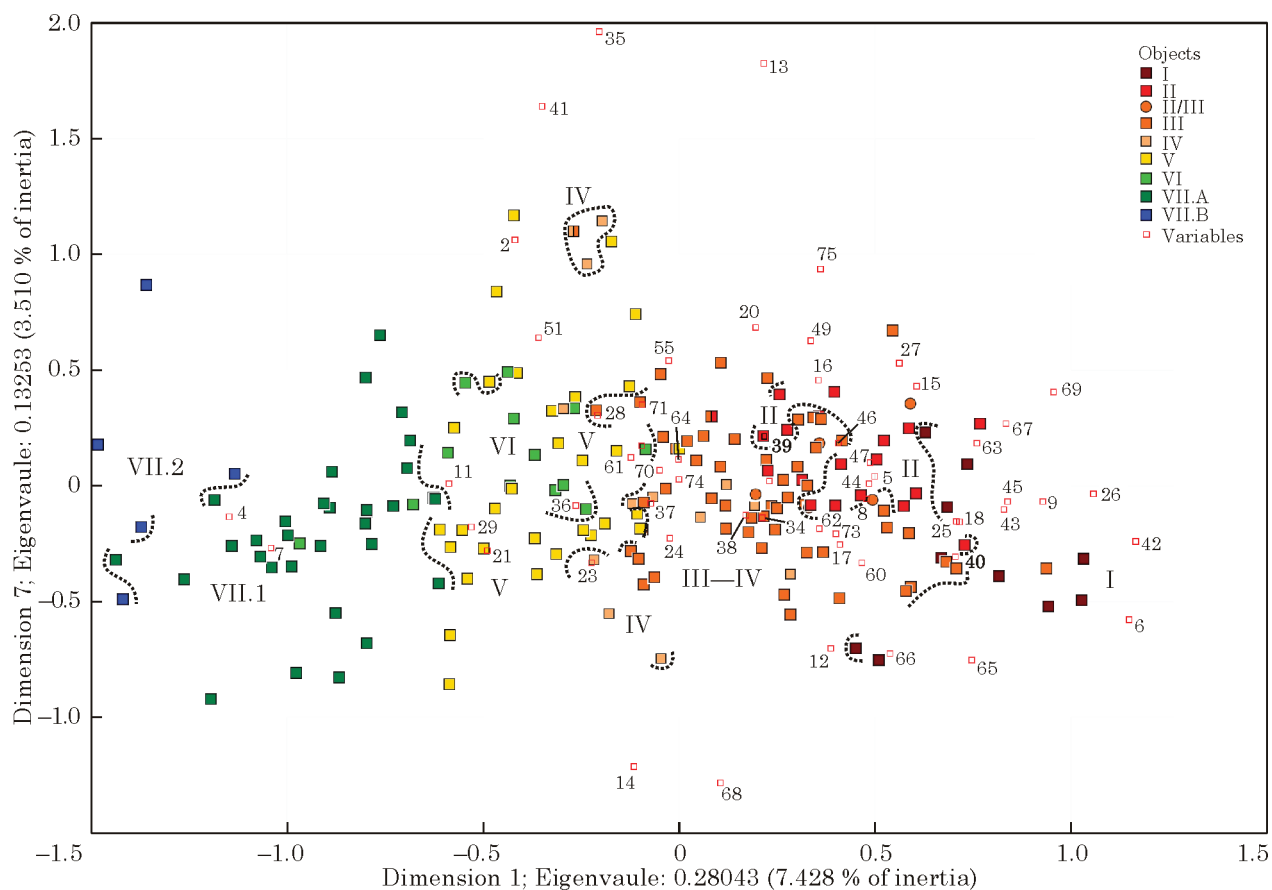


Fig. 4. Diagram presenting the results of correspondence analysis for the graves with male burial places. Paercticular classes are marked with colours, digits in bold — numbering of the grave classes (marked in dashed line) separated in the course of correspondence analysis

grave inventories. On the other hand, dislocation of some grave complexes from the groups of other assemblages belonging to their class is likely to be caused by grave robbing or presence of individual features very typical for other clusters. Additionally, the results of the correspondence analysis inspired the division of the class VII graves into two smaller groups (classes VII.1 and VII.2), based on the characteristics of the inventories. On the plot, graves belonging to the both new classes are located on the outskirts of the remaining complexes, class VII.2 on the outside of the class VII.1. Unlike the graves assigned to the latter category, individuals interred in graves of the class VII.2 often were not equipped with any grave goods, or have only a very poor inventories without weapons or armour.

The results of the correspondence analysis confirm that the previously obtained classes of graves create a hierarchical structure. One of the factors in favour of this hypothesis is the close to parabolic distribution of points symbolizing the analysed graves and elements of the burial rite along the two main axes the plots. Such arrangements of the variables might reflect the changing amount of effort devoted to grave construction, as well as quality and the quantity of grave goods. In the case of the male graves, on the right side of

the plot there are complexes belonging to classes I and II (as well as some class III graves). These complexes could be characterized by the presence of grave construction and kurgan mounds requiring the highest energy expenditure (factors 6 and 9), and the richest grave equipment. An important role in the sets of the grave goods of this group of burials have prestige and high-status items, including the attributes of a high social position of the deceased (features 42, 43, 65—69). Accompanying horse burials are not uncommon (feature 26). On the opposite, left side of the graph, we could find graves involving the lowest effort to build and with no or very few grave goods — complexes of classes VII.1 and VII.2¹. Between the two large groups of grave complexes described above, there are graves belonging to classes III—VI, which can be characterized as containing «average» sets of grave goods and requiring «average» amount of effort to construct. What is more, grave complexes of classes III and IV, situated in hierarchy just below the graves of

1. This observations could be confirmed by the fact that the complexes of class VII.1—2 are located on the same part of the graph that such features as mounds of a diameter up to 24 m, height up to 1.5 m, and volume up to 100 m³ (factor 4) and grave construction of an area up to 9 m² (factor 7).

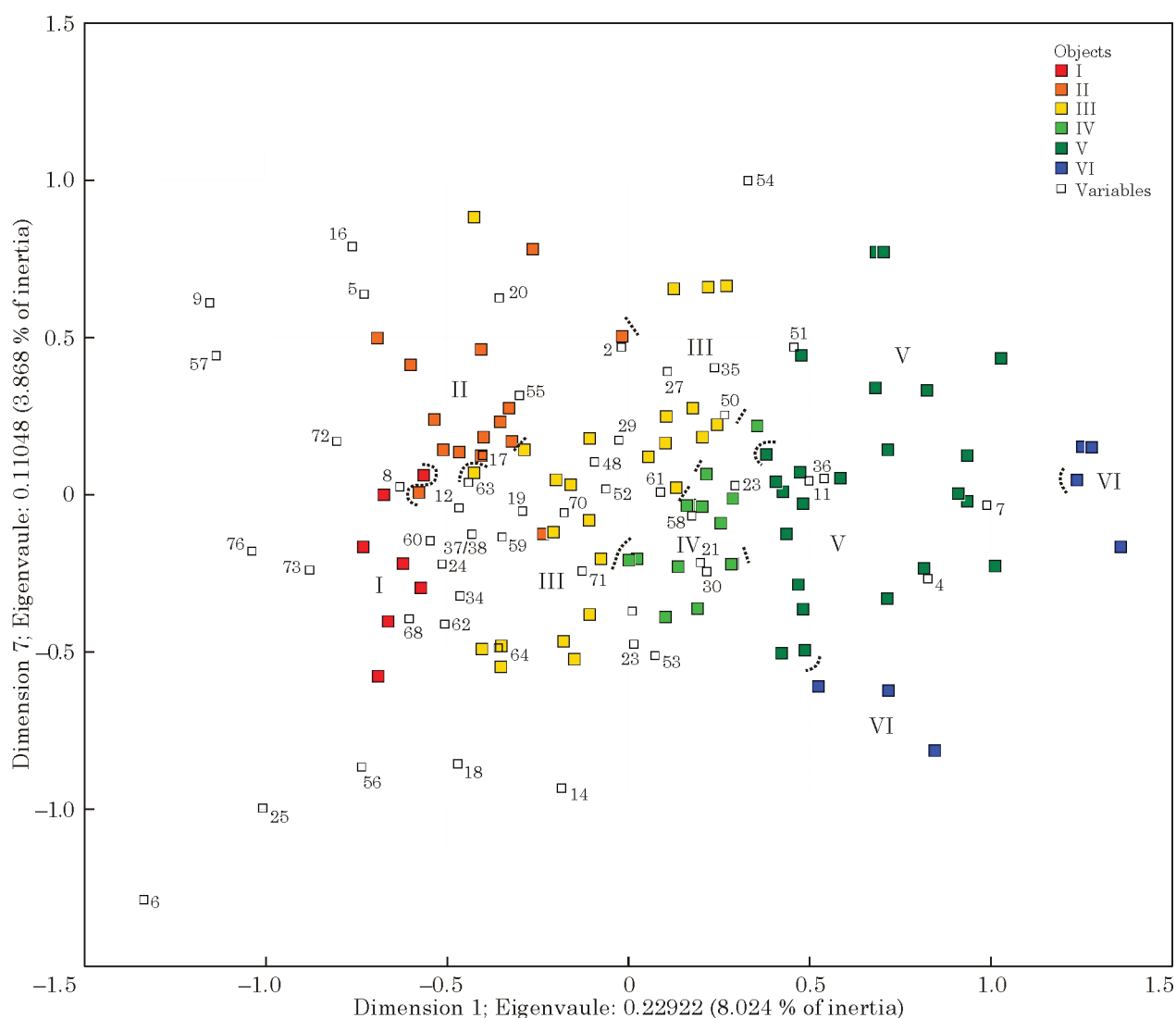


Fig. 5. Diagram presenting the results of correspondence analysis for the graves with female burial places. The list of marks — comp. fig. 4

classes I—II, typically are located on the right side of the y axis of the plot, while complexes belonging to classes V and VI, occupying slightly lower place in the reconstructed social structure, form a cluster on the left side of the same axis. Thus, we could conclude that the decreasing sequence of the energy expenditure devoted to grave construction and the richness and prestige of grave goods takes place from the right to the left side of the parabola visible on the plot.

Very similar are the results of the correspondence analysis of grave complexes and selected elements of mortuary practices of the female series. In this case, the richest and the most elaborate grave constructions of the classes I and II are located on the left side of the y axis of the plot, while the poorest and smallest graves representing classes V—VI form a cluster on the right side of the same axis. Hence, we could note that the distribution of the female graves is a mirror image of the graph prepared for the male series. Interestingly, the female graves belonging to the two above-mentioned main groups closely resemble the characteristics of the

respective classes of male graves (class I—II — factors no. 6—9, 68, and 76; class V—VI — factors 4 and 7). Between the two outermost clusters of graves there are «average» complexes belonging to the classes III—IV. In a similar fashion as the male graves, the y axis of the plot serves as the demarcation line dividing the classes. On the left side of the axis located are graves of class III leaning towards the group of high-class graves, while on the right there are class IV graves, occupying a low position in hierarchy. The final version of the classification of male and female graves from the forest-steppe zone of the left-bank Dnieperland dated to the Classical Scythian period (2nd half of the 6th—4th/3rd century BC), including the observations derived from the correspondence analysis, was described in the table 1 (male graves) and 2 (female graves). The social interpretation of the obtained classes of grave complexes, that is an attempt to identify the social attribution of the deceased interred in complexes belonging to different classes, will be published in the next issue of the «Археологія і давня історія України».

APPENDIX 1

CLASSES OF GRAVES
WITH MALE BURIALS ¹

Class I (10), cluster 4.C, individual complexes of **3.F** (BolG_11) and **6.C** (Pes_18). **Grave mounds**. The largest kurgans, of the height >3.5 m (compl. from the Vorskla river basin — smaller height), average height: 6.7 m, volume: 1982.2 m³; about 40 % compl. with ditches and / or dykes, ind. wooden structures within the mound. **Grave constructions**. Grave pits with additional structural elements, including tombs, also with dromoses, of the area of 10—50 m² (average: 21.4 m²; average total area of grave construction: 22.2 m²), depth ≥1.5 m (average: 2.1 m), and average volume 45.9 m³. **Grave goods**. The richest and the most diverse inventories: (5—20 / average 10.4 / NAT pts. and the average «splendour coefficient» = 96 pts.); full sets of offensive weapons with protective equipment (including imported weapons), elements of horse harness, handmade and / or imported vessels (including metal vessels), bronze cauldrons, less often ceremonial armour (elements of equipment of a warrior), golden jewellery (including torques) and golden appliques of clothing. **Comments**. One compl. with accompanying human burial.

Class II (17), cluster 3.D—E, 4.A, individual complexes of **6.C** (StMer3_11). **Grave mounds**. Kurgans of the height 1—4.3 m (average: 2.1 m) and volume 150—750 m³ (average: 453.3 m³); individual complexes with ditches and / or dykes, as well as wooden structures within the mound. **Grave constructions**. Simple grave pits (3.E) and grave pits with additional structural elements, including tombs with dromoses (clusters 4.A and 3.D), of the area of 10—30 m² (average: 16.5 m²; average total area of grave construction 18.2 m²), depth ≥0.8 m (average: 1.7 m), and average volume 26.1 m³. **Grave goods**. Rich and diverse inventories: (6—16 / average 10.5 / NAT pts. and the average «splendour coefficient» = 92.1 pts.); full sets of offensive weapons with elements of protective equipment (including ind. greaves) (except cluster 4.A), elements of horse harness, sacrificial foods, handmade and / or imported vessels (including metal vessels), ceremonial armour (elements of equipment of a warrior), golden appliques of clothing, less often ind. ornaments (including golden items) and ind. bronze cauldrons and wooden vessels with golden appliques. **Comments**. 27.8 % compl. with accompanying human and / or horse burials (typically cluster 4.A).

Class II/III (5), cluster 3.F. **Grave mounds**. Kurgans of the height 1.4—3.1 m (average: 2.35 m) and volume 285—1750 m³ (average: 1081.9 m³); ditches and / or dykes (20 % of compl.), wooden structures within the mound (60 % of compl.). **Grave constructions**. Grave pits with additional structural elements, including tombs, of the area of 10—30 m² (average: 23.8 m²), depth ≥1.2 m (average: 2.6 m), and average volume 67 m³. **Grave goods**. Heavily robbed inventories: (3—7 NAT pts. and the average «splendour coefficient» = 40.1), equipped mainly with sets of offensive weapons with armour and handmade and / or imported vessels (mainly Greek amphoras), sacrificial foods, ind.

inventories with beads and golden appliques of clothing. **Comments**. One compl. with accompanying human burial.

Class III (47+8), cluster 3.B, 4.B, 6.A—D, F, individual complexes of **3.D** (Vasil_1), **3.F** (Pes_6), **5 6.E** (StMer4_1 and 4, 3_12; Vesel 5 and 6), and **3.C** (Per_18). **Grave mounds**. Kurgans of the height 0.5—4.5 m (average: 1.5 m) and volume 40—850 m³ (average: 250.7 m³); ditches and / or dykes and wooden structures within the mound (about 8.2 % compl. — clusters 3.B and 6.B). **Grave constructions**. Various grave construction, mainly tombs (including tombs with dromoses), of the area of 7—18 m² (average: 11.4 m²; average total area of grave construction 11.9 m²), depth 0.7—3.5 m (average: 1.9 m), and average volume 20.1 m³. **Grave goods**. Arrows, pole and / or cutting and blunt weapons, with elements of protective equipment (mainly clusters 6.A—B and D), tools, handmade and / or imported vessels (mainly Greek amphoras), sacrificial foods, less often golden appliques of clothing; ind. inventories with prestige items — golden jewellery (including torques), ceremonial weapons, metal vessels (imported vessels and cauldrons), imported bronze greaves; NAT — 3—12 pts. (average: 6.6 pts.); average «splendour coefficient» = 55.6. **Comments**. 14.3 % compl. with accompanying human (8.2 %) and / or horse burials (8.2 %).

Class IV (13), cluster 3.A, 5.B, individual complexes of **1.C** (Bas_499), **3.C** (Brov_504), and **6.B** (Star_16). **Grave mounds**. Kurgans as in the class III + graves dug into the existing kurgans, individual complexes with ditches and / or dykes. **Grave constructions**. Various grave construction, mainly catacombs and pits with additional structural elements, the dimensions as in the classes V—VI; average area / average total area of grave construction: 5.6/7 m², depth 2 m. **Grave goods**. Arrows, pole and / or cutting and blunt weapons, with elements of protective equipment (cluster 3. A — combat belts, 5.B — armour), handmade and / or imported vessels, sacrificial foods, less often elements of horse harness, ind. inventories with prestige items — golden appliques of clothing, ceremonial weapons, metal vessels (imported vessels and cauldrons), NAT — 6—11 pts. (min. 3; average: 7.1 pts.); average «splendour coefficient» = 60.3. **Comments**. 20 % compl. with accompanying human burials.

Class V (18+13), cluster 3.C, 5.A and C, individual complexes of **2.A** (Pes_1), **7 1.B** (Czer_16; Olef_19; StMer3_7; Per_1/2000, 3/2001, 1 and 4/2002) and **5 6.E**. **Grave mounds**. Kurgans of the height 0.6—2.1 m (average: 0.9 m; cluster 6.E — also higher; cluster 1.B — smaller, about 0.4—0.8 m) and volume up to 600 m³ (average: 117.4—132.2 m³); individual complexes with ditches and / or dykes and wooden structures within the mound. **Grave constructions**. Various grave construction, mainly pits and catacombs (cluster 3.C — mainly tombs), of the dimensions close to average, total area of grave construction: 5—12 m² (sometimes smaller or bigger; average: 6.9—7.2 m²), depth: 0.5—2.3 m (grave pits) or 2.3—4.5 (catacombs), average volume of grave pits: 8.8—9.9 m³. **Grave goods**. Arrows + pole weapons (clusters 5.A, 5.C and 6.E) / cutting weapons (cluster 3. C), handmade and / or imported vessels (mainly Greek amphoras), tools, sacrificial foods, 1—2 categories of ornaments; 3.C, 5.A and 5.C — golden jewellery; 3.C and 6.E — elements of horse harness; ind. inventories with combat belts and other prestige items — golden torques, metal vessels (imported vessels and cauldrons) (only cluster 5.C), NAT — 3—12 pts. (average: 5.3—6.5 pts.); average «splendour coefficient» = 43.2—

1. Classes of graves with male burials from the forest-steppe zone of the left-bank Dnieperland, dated between the 2nd half of the 6th and 4th/3rd century BC — the summary of the results of the cluster analysis and the correspondence analysis.

53.7. **Comments.** individual complexes with accompanying human burials.

Class VI (13), cluster 1.C, individual complexes of 1.A (Olef_13) and 2.B (Bas_497). **Grave mounds.** Kurgans of the height 0.4—2 m (average: 0.8 m) and volume up to 130 m³ (average: 60.6 m³). **Grave constructions.** Simple grave pits and simple tombs, of average dimensions or slightly smaller, area 2—9 m² (average: 6.1 m²), depth 0.8—1.8 m (average: 1.4 m). **Grave goods.** Arrows and / or spear, with elements of horse harness, handmade vessels and ind. ornaments; less often tools, cutting weapons, elements of protective equipment (combat belts), Greek amphoras; NAT — 3—9 pts. (average: 5.5 pts.); average «splendour coefficient» = 47.1.

Class VII.1 (37), cluster 1.A-B, 2.A-B. **Grave mounds.** Average or small kurgans of the height up to 1.8 m (average: 0.7 m) and volume up to 115 (average: 33 m³). **Grave constructions.** Simple grave pits, sometimes simple tombs and catacombs, of the dimensions in the lower range of average values or smaller, area up to 8 m² (average: 4.3 m²), depth up to 1.8 m (max.: 2.15 m, average: 1.2 m); average volume of grave pits: 5 m³. **Grave goods.** Arrows and / or pole weapons, tools (mainly knives and ferrules), ind. ornaments, handmade vessels (clusters 1.A—B), sacrificial foods (mainly cluster 2.A), ind. inventories with cutting weapons, combat belts and Greek amphoras; NAT — 1—5 pts. (average: 2.7); average «splendour coefficient» = 20.6.

Class VII.2 (9), cluster 1.A (Grisz_1/2 and 3; MalR_2/2; MTrost_3; Per_1/2006 and 3/2000). **Grave mounds.** Very small kurgans of the height up to 0.7 m; ind. accompanying burials (MalR_2/2). **Grave constructions.** Simple grave pits of the total area up to 7.5 m² (average: 4.8 m²), depth up to 1.25 m (average: 0.9 m), and average volume: 4.5 m³. **Grave goods.** Handmade vessels, ind. Knives / beads; about 50 % inventories with no grave goods.

APPENDIX 2

CLASSES OF GRAVES WITH FEMALE BURIALS ¹

Class I (7), cluster 3.C, 4.A, individual complexes of 4.B (Pes_8/1 and 18) and 6.E (Aks_1886). **Grave mounds.** The largest kurgans, of the height <2.5 m (compl. from the Vorskla river basin — up to 3 m, Donets and Sula river basin — higher) (average: 3.7 m); average volume 1059 m³; ditches and / or dykes (71.4 % of compl.) and wooden structures within the mound (14.3 % of compl.). **Grave constructions.** Grave pits with additional structural elements, including tombs with dromoses, of the area of 10—33 m² (average: 15.8 m²; average total area of grave construction: 17.3 m²), depth ≥1.5 m (average: 1.9 m), and average volume 34.3 m³. **Grave goods.** The richest and the most diverse inventories: (7—16 / average: 10.4 / NAT pts. and the average «splendour coefficient» = 98.9 pts.), jewellery (including golden items) — sets of beads + other categories of personal ornaments), mirrors, golden appliques of clothing, handmade and / or

imported vessels (including bronze vessels), sacrificial foods, tools (mainly spindle whorls), some inventories with stone plates/platters; in Kupl_8/1 bronze cauldron, golden applique of whip head (?), arrows and pole weapons. **Comments.** One compl. with accompanying human burial; in double and collective graves with male burials of classes I and II.

Class II (15), cluster 3.B, 4.B, D, 6.C, 6.E, individual complexes of 5.A (Osn_5). **Grave mounds.** Kurgans of the height 0.8—4.2 m (average: 1.5 m) and volume 170—670 m³ (average: 308.9 m³); individual complexes with wooden structures within the mound. **Grave constructions.** Tombs (including tombs with dromoses — cluster 3.B), ind. grave pits additional structural elements and catacombs, of total area of grave construction 8—27 m² (average: 14.2 m²), depth ≥0.8 m (average: 1.8 m), and average volume 24.4 m³. **Grave goods.** Rich and diverse inventories: (6—14 / average: 7.7 / NAT pts. and the average «splendour coefficient» = 68.8 pkt.); jewellery (including golden items), beads + metal bracelets / rings and / or earrings, less often pins, mirrors, golden appliques of clothing, handmade and / or imported vessels, sacrificial foods, tools (mainly knives), ind. inventories with elements of horse harness and wooden vessels with golden appliques. **Comments.** 33.3 % compl. with accompanying human burials; in double and collective graves with male burials of classes II (female burials of cluster 3.B and ind. 5.A and III).

Class III (25), cluster 3.A, 4.C, 5.A—B, 6.A, individual complexes of 4.B (Kupl_13/1), 6.A (Bas_A), C (Mir_3), D (StMer_9/1) and E (Star_15). **Grave mounds.** Kurgans of the height 0.3—3 m (average: 0.9 m) and volume 10—700 m³ (average: 163.3 m³); 12 % of compl. with ditches and / or dykes. **Grave constructions.** Various grave construction, mainly tombs (including individual complexes with dromoses), of total area of grave construction 5—16.5 m² (Bas_A — area 3 m²; average total area of grave construction: 9.8 m²), depth 0.5—3.5 m (average: 1.6 m), and average volume 15.7 m³. **Grave goods.** Ind. beads (cluster 5.A) or sets of beads (including golden items; except clusters 4. C and 5.B) + metal bracelets / rings (clusters 5.A and 6.A) / pins (clusters 3.A and 4.C), less often earrings, handmade and / or imported vessels, sacrificial foods, tools + mirrors (cluster 3.A) and / or golden appliques of clothing (clusters 3.A, 4.C and 6.A); ind. inventories with stone plates / platters; about 23.1 % inventories with arrows; NAT — 3—14 pts. (average: 6.8 pts.); average «splendour coefficient» = 58.2. **Comments.** Individual complexes with accompanying human burials; in double and collective graves with male burials of classes III and V.

Class IV (14), cluster 2.A, 6.B, D, individual complexes of 5.B (Czer_16) and 6.A (Koto_3). **Grave mounds.** Average kurgans of the height 0.3—1 (average: 0.6) and volume up to 95 m³ (average: 41.9 m³). **Grave constructions.** Grave pits (clusters 6.B i D), simple tombs (cluster 2.A and Czer_16), and ind. catacombs, of the dimensions close to average, area 3—11 m² (average: 6.1 m²; average total area of grave construction: 6.5 m²), depth 0.4—2.1 m (average: 1.2 m), and average volume 8 m³. **Grave goods.** Ind. beads (cluster 2.A) or sets of beads (including golden items), jewellery (cluster 6.B), mirrors, handmade and / or imported vessels, sacrificial foods, tools (mainly knives), less often golden appliques of clothing; in Pod_3/2 set of offensive weapons and combat belt; NAT — 4—11 pts. (Czer_16 — only 1 pkt.; average: 5.4 pkt.); average «splendour coefficient» = 46.6. **Comments.** 14.3 %

1. Classes of graves with female burials from the forest-steppe zone of the left-bank Dnieperland, dated between the 2nd half of the 6th and 4th/3rd century BC — the summary of the results of the cluster analysis and the correspondence analysis.

compl. with accompanying human burials (cluster 6. B); in double and collective graves with male burials of classes V and VII.A.

Class V (20 + 5), cluster 1.B, 2.B, individual complexes of 1.A (Grisz_47/2) and 2.A (Per_4/2000) + 5 1.C (BolG_2; Per_1/2006; Pes_21 and 24; StMer3_9/2). **Grave mounds.** Average kurgans of the height 0.3—0.9 (average: 0.6) and volume up to 95 m³ (average: 40.6 m³); individual complexes with ditches. **Grave constructions.** Grave pits, simple tombs, and ind. catacombs, of the dimensions in the lower range of average values or smaller, area: 1—8 m² (average: 4.8 m²), depth: 0.6—1.8 m (grave pits) or 2.5—3 m (catacombs) (average: 1.3 m); average volume of grave pits 5.5 m³. **Grave goods.** Knives and / or spindle whorls, handmade vessels, 1—3 categories of jewellery, mainly ind. beads or sets of beads; less often pins, earrings, metal bracelets; ind. inventories with items typical for higher classes — golden appliques of clothing, small golden or silver ornaments, mirrors, sacrificial foods; about 16.7 % inventories with arrows; NAT — 2—6 pts. (average: 3.5 pts.); average «splendour coefficient» = 29.8. **Comments.** About 20 % compl. with accompanying human burials; in double and collective graves with male burials of classes V—VII.A (ind. VII.B).

Class VI (7), cluster 1.A and 1.C. Grave mounds. Small kurgans of the height up to 0.8 m; ind. flat grave (Dud); compl. of class 1.A with ditches. **Grave constructions.** Simple grave pits of the total area up to 5 m² (average: 2.1 m²), depth up to 1.1 m (average: 0.9 m), and average volume 3.4 m³. **Grave goods.** About 42.9 % inventories with no grave goods; remaining inventories with 1—2 items, mainly ind. ornaments, handmade vessels, arrows (28.6 %), and knives. **Comments.** Double graves and kurgans with ind. male and female graves with male burials of class VII.A.

ЛІТЕРАТУРА

- Бабенко, Л. И. 2005. *Песочинский курганный могильник скифского времени*. Харьков: Райдер.
- Бойко, Ю. М. 2017. *Соціальний склад населення басейну р. Ворскли за скифської доби*. Котельва; Київ: ЦП НАН України і УТОПіК; ІКЗ «Більськ».
- Болтрик, Ю. В. 2004. Социальная структура Скифии IV в. до Р. Х., отраженная в погребальных памятниках. В: Chochorowski, J. (ed.). *Kimmerowie, Scytowie, Sarmaci. Księga poświęcona pamięci profesora Tadeusza Sulimirskiego*. Kraków: Księgarnia Akademicka, с. 85-91.
- Буйнов, Ю. В., Гречко, Д. С. 2015. Погребения женщин в курганах скифского времени северскодонецкой Лесостепи: палеосоциологический анализ. *Вісник Харківського національного університету імені В. Н. Каразіна*, 1145: Серія: Історія, 50, с. 190-199.
- Буйнов, Ю. В., Окатенко, В. Н. 2013. К вопросу о социальной структуре населения северскодонецкой Лесостепи V—IV вв. до н. е. *Древности*, 12, с. 123-136.
- Бунятян, Е. П. 1985. *Методика социальных реконструкций в археологии (на материалах скифских могильников IV—III вв. до н. э.)*. Киев: Наукова думка.
- Васютин, С. А., Крадин, Н. Н., Тишкин, А. А. 2005. Реконструкции социальной структуры ранних кочевников в археологии. В: Крадин, Н. Н., Тишкин, А. А., Харинский, А. В. (ред.). *Социальная структура ранних кочевников Евразии*. Иркутск: ИрГТУ, с. 16-64.

Гречко, Д. С., Шелехань, А. В. 2012. *Гришковский могильник скифов на Харьковщине*. Киев: ИА НАН Украины.

Ильинская, В. А. 1968. *Скифы Днепроовского Левобережья (курганы Посулья)*. Киев: Наукова думка.

Ильинская, В. А., Тереножкин, А. И. 1983. *Скифия VII—IV вв. до н. э.* Киев: Наукова думка.

Ромашко, В. А., Скорый, С. А. 2009. *Близнец 2: Скифский аристократический курган в Днепроовском правобережном Надпорожье*. Дніпропетровськ: Пороги.

Шульженко, М. А. 1987. К вопросу о социальной интерпретации погребального обряда раннескифских курганов Посулья. В: Матющенко, В. И. (ред.). *Исторические чтения памяти Михаила Петровича Грязнова*. Омск: ОмГУ, с. 143-145.

Baxter, M. J. 2015. *Notes on Quantitative Archaeology*. <https://nottinghamtrent.academia.edu/MikeBaxter> (the access of day 10 February 2016).

Brémond, A., Couet, J. F., Davie, A. 2006. *Kompendium wiedzy o socjologii*. Warszawa: PWN.

Brown, J. 1995. On Mortuary Analysis — with Special Reference to the Saxe-Binford Research Program. In: Beck, L. A. (ed.). *Regional Approaches to Mortuary Analysis*. New York: Plenum Press, p. 3-26.

Burghardt, M. 2016. Wyznaczniki płci w grobach ludności grup leśnostepowych kultury scytyjskiej. *Materiały i sprawozdania Rzeszowskiego ośrodka archeologicznego*, 37, p. 163-206.

Burghardt, M. 2017a. Social stratification of the population of the forest-steppe area of the Dnieperland in the Early Scythian period (VII — first half of VI cent. BC). *Sprawozdania archeologiczne*, 69, p. 133-183.

Burghardt, M. 2017b. Stratyfikacja społeczna ludności prawobrzeżnego leśnostepowego Podnieprza okresu Scytii klasycznej (2 poł VI—IV/III w. p. n. e.). *Materiały i sprawozdania Rzeszowskiego ośrodka archeologicznego*, 38, p. 111-154.

Ciesielska, A. 2002. *Elementy teorii społecznej w archeologii. Koncepcje grup, instytucji i struktur społecznych*. Poznań: Uniwersytet Adama Mickiewicza.

Dwight, W. R. 1989. Statistical Methods and Reasoning in Archaeological Research: A Review of Praxis and Promise. *Journal of Quantitative Anthropology*, 1, p. 5-78.

Gryzińska-Sawicka, N. 2014. Obraz struktury społecznej ludności kultury wielbarskiej w świetle źródeł archeologicznych i danych antropologicznych. In: Dzieduszycki, W., Wrzesiński, J. (eds.). *Królowie i biskupi, rycerze i chłopci — identyfikacja zmarłych. Funderalia Lednickie*, 16, p. 51-61.

Härke, H. 1997. The nature of burial data. In: Jensen, C. K., Nielsen, K. H. (eds.). *Burial and society: the chronological and social analysis of archaeological burial data*. Aarhus: University Press, p. 19-27.

Härke, H. 2000. Social Analysis of Mortuary Evidence in German Protohistoric Archaeology. *Journal of anthropological archaeology*, 19, p. 369-384.

Hedeager, L. 1978. Process towards state formation in Early Iron Age Denmark. In: Kristiansen, K., Paludan-Muller, C. (eds.). *New Directions in Scandinavian Archaeology*. Copenhagen: National Museum of Denmark, p. 217-223.

Hodson, F. R. 1977. Quantifying Hallstatt: some initial results. *American Antiquity*, 42, p. 406-410.

Peebles, Ch. S., Kus, S. M. 1977. Some Archaeological Correlates of Ranked Societies. *American Antiquity*, 42, 3, p. 421-448.

- Renfrew, C., Bahn, P. 2002. *Archeologia. Teorie, metody, praktyka*. Warszawa: Prószyński i S-ka.
- Rolle, R. 1979. *Totenkult der Skythen. Das Steppengebeit*. Berlin; New York: Der Gruyter.
- Rowińska, A., Sudnik-Wójcikowska, B., Moysiienko, I. I. 2010. Kurhany — dziedzictwo kulturowe w krajobrazie antropogenicznym strefy stepów i lasostepu — oczami archeologia i botanika. *Wiadomości botaniczne*, 54, 3/4, p. 7-20.
- Sudnik-Wójcikowska, B., Moysiienko, I. I. 2012. *Kurhany na «Dzikich Polach» — dziedzictwo kultury i ostoja ukraińskiego stepu*, Warszawa: Uniwersytet Warszawski.
- Tainter, J. 1975. Social inference and mortuary practices: an experiment in numerical classification. *World archaeology*, 7, p. 1-15.
- Tainter, J. 1978. Mortuary practices and the study of prehistoric social systems. *Advances in archaeological method and theory*, 1, p. 105-141.
- Testart, A. 2004. *La Servitude volontaire*. 1: Les morts d'accompagnement. Paris: Errance.
- The History... 1910. *The History of Herodotus*. Translated into English by G. Rawlinson. London: J. M. Dent & Sons; New York: E. P. Dutton & Co.
- Zimmermann, A. 1997. Zur Anwendung der Korrespondenzanalyse in der Archäologie. *Internationale Archaologie*, 23, p. 9-15.
- Baxter, M. J. 2015. *Notes on Quantitative Archaeology*. <https://nottingham.academia.edu/MikeBaxter> (the access of day 10 February 2016).
- Brémond, A., Couet, J. F., Davie, A. 2006. *Kompendium wiedzy o socjologii*. Warszawa: PWN.
- Brown, J. 1995. On Mortuary Analysis — with Special Reference to the Saxe-Binford Research Program. In: Beck, L. A. (ed.). *Regional Approaches to Mortuary Analysis*. New York: Plenum Press, p. 3-26.
- Burghardt, M. 2016. Wyznaczniki płci w grobach ludności grup leśnostepowych kultury scytyjskiej. *Materiały i sprawozdania Rzeszowskiego ośrodka archeologicznego*, 37, p. 163-206.
- Burghardt, M. 2017a. Social stratification of the population of the forest-steppe area of the Dnieperland in the Early Scythian period (VII — first half of VI cent. BC). *Sprawozdania archeologiczne*, 69, p. 133-183.
- Burghardt, M. 2017b. Stratyfikacja społeczna ludności prawobrzeżnego leśnostepowego Podnieprza okresu Scytii klasycznej (2 poł VI—IV/III w. p. n. e.). *Materiały i sprawozdania Rzeszowskiego ośrodka archeologicznego*, 38, p. 111-154.
- Ciesielska, A. 2002. *Elementy teorii społecznej w archeologii. Koncepcje grup, instytucji i struktur społecznych*. Poznań: Uniwersytet Adama Mickiewicza.
- Dwight, W. R. 1989. Statistical Methods and Reasoning in Archaeological Research: A Review of Praxis and Promise. *Journal of Quantitative Anthropology*, 1, p. 5-78.
- Gryzińska-Sawicka, N. 2014. Obraz struktury społecznej ludności kultury wielbarskiej w świetle źródeł archeologicznych i danych antropologicznych. In: Dzieduszycki, W., Wrzesiński, J. (eds.). *Królowie i biskupi, rycerze i chłopci — identyfikacja zmarłych. Funeralia Lednickie*, 16, p. 51-61.
- Härke, H. 1997. The nature of burial data. In: Jensen, C. K., Nielsen, K. H. (eds.). *Burial and society: the chronological and social analysis of archaeological burial data*. Aarhus: University Press, p. 19-27.
- Härke, H. 2000. Social Analysis of Mortuary Evidence in German Protohistoric Archaeology. *Journal of anthropological archaeology*, 19, p. 369-384.
- Hedeager, L. 1978. Process towards state formation in Early Iron Age Denmark. In: Kristiansen, K., Paludan-Muller, C. (eds.). *New Directions in Scandinavian Archaeology*. Copenhagen: National Museum of Denmark, p. 217-223.
- Hodson, F. R. 1977. Quantifying Hallstatt: some initial results. *American Antiquity*, 42, p. 406-410.
- Peebles, Ch. S., Kus, S. M. 1977. Some Archaeological Correlates of Ranked Societies. *American Antiquity*, 42, 3, p. 421-448.
- Renfrew, C., Bahn, P. 2002. *Archeologia. Teorie, metody, praktyka*. Warszawa: Prószyński i S-ka.
- Rolle, R. 1979. *Totenkult der Skythen. Das Steppengebeit*. Berlin; New York: Der Gruyter.
- Rowińska, A., Sudnik-Wójcikowska, B., Moysiienko, I. I. 2010. Kurhany — dziedzictwo kulturowe w krajobrazie antropogenicznym strefy stepów i lasostepu — oczami archeologia i botanika. *Wiadomości botaniczne*, 54, 3/4, p. 7-20.
- Sudnik-Wójcikowska, B., Moysiienko, I. I. 2012. *Kurhany na «Dzikich Polach» — dziedzictwo kultury i ostoja ukraińskiego stepu*, Warszawa: Uniwersytet Warszawski.
- Tainter, J. 1975. Social inference and mortuary practices: an experiment in numerical classification. *World archaeology*, 7, p. 1-15.
- Tainter, J. 1978. Mortuary practices and the study of prehistoric social systems. *Advances in archaeological method and theory*, 1, p. 105-141.
- Testart, A. 2004. *La Servitude volontaire*. 1: Les morts d'accompagnement. Paris: Errance.
- The History... 1910. *The History of Herodotus*. Translated into English by G. Rawlinson. London: J. M. Dent & Sons; New York: E. P. Dutton & Co.
- Zimmermann, A. 1997. Zur Anwendung der Korrespondenzanalyse in der Archäologie. *Internationale Archaologie*, 23, p. 9-15.

REFERENCES

- Babenko, L. I. 2005. *Pesochinskii kurgannyi mogilnik skifskogo vremeni*. Kharkov: Raider.
- Boiko, Yu. M. 2017. *Sotsialnyi sklad naselennia baseinu r. Vorskly za skifskoi doby*. Kotelva; Kyiv: TsP NAN Ukrainy i UTOPIK; IKZ «Bilsk».
- Boltrik, Iu. V. 2004. Sotsialnaia struktura Skifii IV v. do R. Kh., otrazhennaia v pogrebalnykh pamiatnikakh. In: Chochorowski, J. (ed.). *Kimmerowie, Scytowie, Sarmaci: Księga poświęcona pamięci profesora Tadeusza Sulimirskiego*. Kraków: Księgarnia Akademicka, s. 85-91.
- Buinov, Iu. V., Grechko, D. S. 2015. Pogrebeniia zhenshchin v kurganakh skifskogo vremeni severuskodonetskoii Lesostepi: paleosotsiologicheskii analiz. *Visnyk Kharkivskoho natsionalnoho universytetu imeni V. N. Karazina*, 1145: Seriia: Istoriiia, 50, s. 190-199.
- Buinov, Iu. V., Okatenko, V. N. 2013. K voprosu o sotsialnoi strukture naselennia severuskodonetskoii Lesostepi V—IV vv. do n. e. *Drevnosti*, 12, s. 123-136.
- Buniatian, E. P. 1985. *Metodika sotsialnykh rekonstruktsii v arkheologii (na materialakh skifskikh mogilnikov IV—III vv. do n. e.)*. Kiev: Naukova dumka.
- Vasiutin, S. A., Kradin, N. N., Tishkin, A. A. 2005. Rekonstruktsii sotsialnoi struktury rannikh kochevnikov v arkheologii. In: Kradin, N. N., Tishkin, A. A., Kharinskii, A. V. (eds.). *Sotsialnaia struktura rannikh kochevnikov Evrazii*. Irkutsk: IrGTU, s. 16-64.
- Grechko, D. S., Shelekhan, A. V. 2012. *Grishkovskii mogilnik skifov na Kharkovshchine*. Kiev: IA NAN Ukrainy.
- Ilinskaia, V. A. 1968. *Skify Dneprovskogo Lesostepnogo Levoberezhia (kurgany Posulia)*. Kiev: Naukova dumka.
- Ilinskaia, V. A., Terenozhkin, A. I. 1983. *Skifia VII—IV vv. do n. e.* Kiev: Naukova dumka.
- Romashko, V. A., Skoryi, S. A. 2009. *Bliznets 2: Skifskii aristokratsicheskii kurgan v Dneprovskom pravoberezhnom Nadpropozhe*. Dnipropetrovsk: Porogi.
- Shulzhenko, M. A. 1987. K voprosu o sotsialnoi interpretatsii pogrebalnogo obriada ranneskifskikh kurganov Posulia. In: Matiushchenko, V. I. (ed.). *Istoricheskie chteniia pamiati Mikhaila Petrovicha Griaznova*. Omsk: OmGU, s. 143-145.

M. Burghardt

**SOCIAL STRATIFICATION OF
FOREST-STEPPE POPULATION
OF THE LEFT-BANK OF THE
DNEPERLAND DURING THE
CLASSICAL SCYTHIA (the 2nd half of
6th—4th/3rd century BC)**

The main goal of the article was to present a new method of analysing and interpreting the role of selected aspects of funerary rites in reconstructing the social structure of the inhabitants of the forest-steppe areas of the left-bank Dnieperland between the 2nd half of the 6th and 4th/3rd century BC. The source database for this paper consists of 247 grave complexes. In the first stage of research, an attempt was made to determine which elements of the mortuary practices could be regarded as a reliable source for social analysis. The evaluation was based on the previous publications on the matter, historic sources (*The Histories* of Herodotus), and new observations concerning funerary customs of the analysed societies. It was concluded that the most reliable indicator of the position of a deceased in a social hierarchy is the amount of effort (energy expenditure) devoted by mourners to build a grave structure and organize funeral ceremonies. The amount of work needed to construct a funerary complex can be deduced from the size and complexity of a grave and a burial mound, as well as «richness» and diversity of grave goods. In some cases, presence, or absence, of selected mortuary practices (such as accompanying horse and human burials) could also be useful. The aim of the second stage of the analysis was to propose a new classification of the funerary complexes of the studied communities. The method of systematization was based on a theoretical framework of the processual archaeology and review of written historical sources. Grave complexes were classified using statistical methods (multivariate data analysis). The evaluations resulted in identifying various classes of graves, which can be assigned to individuals occupying a specific place in social structure. One of the most important characteristics of the obtained classification of grave complexes is its hierarchical organization — the subsequent classes could be characterized by decreasing energy expenditure devoted to constructing a grave, and increasingly «poorer» grave goods.

Keywords: funeral rites, social stratification, Forest-steppe Dnieper, Scythians.

M. Burghardt

СОЦІАЛЬНА СТРАТИФІКАЦІЯ НАСЕЛЕННЯ ЛІВОБЕРЕЖНОГО ЛІСОСТЕПУ ПОДНІПРОВ'Я КЛАСИЧНОГО СКІФСЬКОГО ПЕРІОДУ (друга половина VI — IV/III ст. до н. е.)

Метою цієї статті є представлення одного із можливих способів дослідження й інтерпретації значення поховального обряду для реконструкції соціальної стратифікації населення лівобережної зони Подніпров'я між другою половиною VI й IV/III ст. до н. е. З цією метою було проаналізовано 247 поховальних комплексів. Першим етапом дослідження є визначення особливостей поховального обряду, корисних для соціального аналізу. На основі існуючих пропозицій у цій сфері та їх зіставлення з письмовими джерелами (*Історія Геродота*), а також на базі вивчення поховальних звичаїв, застосованих для суспільних досліджень, встановлено, що основним ідентифікатором для визначення місця померлого в ієрархії, є оцінка робочого об'єму, призначеного для зведення поховання. Це робоче навантаження проявляється у розмірі могили й насипу, а також визначається за ступенем їхньої складності. Не менш важливим критерієм є й багатство та різноманітність поховального інвентаря і меншою мірою також наявність / відсутність певних елементів поховальних обрядів (напр., поховання залежних осіб і супроводжувальні поховання коней). Другим етапом дослідження є розробка власної системи класифікації могил цих соціальних верств. Головним вихідним пунктом цього етапу стала організація цих могил, щоб вони відображали позицію померлого у рамках соціальної стратифікації як способу ієрархізації суспільства. Процедура дослідження базується на вибраних тезах у галузі процесуальної археології та на аналізі письмових джерел. Класифікація могил розроблена на основі статистичних інструментів (багатовимірний аналіз даних). Виділено кілька класів могил людей, які займали певне місце в ієрархії. Розроблена таким чином класифікація могил має ієрархічну структуру — комплекси, згруповані у відокремлених рангах, характеризуються по відношенню до попередніх меншим об'ємом робіт для улаштування могил, а розміщений у них поховальний інвентар бідніший.

Ключові слова: поховальний обряд, соціальна стратифікація, Лісостепове Придніпров'я, скіфи.

Одержано 28.04.2021

БУРГХАРДТ Марцін, доктор філософії (Ph D), Музей у Ярославі Кам'яниця Орсетті, Ярослав, Польща.
BURGHARDT Marcin, Doctor, Museum in Jarosław Kamienica Orsettich, Jarosław, Poland.
ORCID: 0000-0002-9915-7539, e-mail: marcin.burghardt@gmail.com.